PRE-HOSPITAL PATIENT CARE PROTOCOLS

BASIC LIFE SUPPORT/ADVANCED LIFE SUPPORT

RAPPAHANNOCK SINCE 1976 EMS COUNCIL INC.

Board Approved October 2019

Rappahannock EMS Council
435 Hunter Street
Fredericksburg, VA 22401

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PRE-HOSPITAL PATIENT CARE PROTOCOL

ADMINISTRATIVE

Section I

Rappahannock EMS Council
435 Hunter Street
Fredericksburg, VA 22401

BASIC LIFE SUPPORT/ADVANCED LIFE SUPPORT
ADMINISTRATIVE PATIENT CARE PROTOCOL

REVISED 06/2007; 12/2009; 07/2011; 06/2012; 10/2017; 05/2019
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2020 – 2021

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1.0 Introduction and Use

The following protocols have been approved by the Rappahannock Emergency Medical Services Council (REMSC) Guidelines and Training Committee as the Pre-Hospital Patient Care Protocol for agencies in the REMSC region. These treatments were developed through input and guidance from ALS and BLS providers in the region, as well as the various medical directors. The protocols are designed to provide information on procedures providers at different levels are permitted to do and denote standing orders for certain conditions. The medical director may choose to modify certain treatment recommendations for specific conditions and may even limit performance authorization for any provider at any level. These modifications should be supported by written documentation and may be maintained in a file at the regional council or at the individual agency.

The treatment protocols are designed to give reminders and guidance for various conditions but are NOT a replacement for sound clinical judgment. As clinical guides, they are not intended to be educational documents and training should be completed PRIOR to their use to understand the information contained and the guidance that it provides. They also outline care for a typical presentation and may not fit exactly with the patient who has combined symptoms from multiple conditions. In cases where progressive care is indicated by permission for repeat orders, it is assumed that the prior care was not effective and the patient continues with symptoms or worsens. If additional treatment is not necessary you are not obligated to complete the entire treatment protocol just because it is written.

The provider may contact on-line medical control for guidance and assistance. Many of the protocols are designed to allow providers to initiate appropriate care promptly without requiring contact with medical control first. With that acknowledgment comes the medical director's expectation that providers perform complete assessments, recognize proper signs and symptoms, and provide condition-related therapy by utilizing ardent clinical assessment skills and keen critical thinking and clinical judgment. The order of treatment in the protocol may not always be appropriate for all patients and based on clinical judgment it may be modified by providers. If there are questions or uncertainties medical control should be used rather than making assumptions and providing unsuitable care.

The physician providing on-line medical control has the authority to suspend or deviate from the protocol and may provide additional or changed orders which are not specified in the regional protocol. Any order received from medical control must be reduced to writing and documented on the patient care report.

Treatment is broken into categories depending on how the physician group recommends that it be used. In previous versions there was a conditional category that addressed supplemental certification with classes like ACLS, PALS, PEPP, ITLS, etc. It is the expectation that ALS providers (EMT-I and EMT-P) maintain certification in ACLS and PALS. Many of the treatment algorithms are based on science and information from

these classes and where applicable, treatment recommendations from ACLS, PALS, and NRP are included in the protocols. The category for the particular order is indicated on the right hand column of the treatment protocol with one of the following letters:

S – Indicates a standing order that may be completed as written without consulting medical control prior to beginning treatment

O – Indicates an order that requires contact and approval from on-line medical control prior to starting the treatment

R – indicates an order that is restricted and NOT OPEN to every provider at that Virginia EMS certification level; it is based on conditions and additional requirements which must be met prior to use

A complete Pre-Hospital Patient Care Protocol consists of all sections including Administrative, Clinical Procedures, Medical and Trauma. A copy of this document should be kept at the emergency department (ED), each EMS agency, and in every ambulance unit in the REMSC region. Additional copies are available at www.REMSCouncil.org.

Each protocol is dated by month and year. It will be reviewed as needed by the REMSC Guidelines and Training Committee and the Protocol Sub-Committee. Revisions are made to individual treatment protocols as needed and periodic complete reviews are done triennially. Any provider may submit input for changes to the regional protocols by submitting written requests and ideas to the REMS Council with attention to "protocol updates". All suggestions will be routed through the Protocol Sub-committee, who will make recommendations to the Guidelines and Training Committee who will make recommendations to the Medical Direction Committee. Once approved, changes will be made and revised pages will be issued to Operational Medical Directors, the ED medical staff (Medical Director), and to the individual agencies that will then be responsible for any necessary in-service training.

If it is a significant change, the G&T Committee will forward recommendations to the REMS Council Board of Directors. Once changes have been made, dates will be updated to indicate the change and the new protocol will be posted to the internet on the REMS Council website. Notification will be made to providers in the region through information on social media, announcements on the website, posting at the regional hospitals, and information in the newsletter and other communication devices.

2.0 Acknowledgements

The Rappahannock Emergency Medical Services Council Board of Directors would like to thank each person who took the time to review and revise our existing protocol and to write a new protocol that reflects the current standard of quality patient care for our region. As new science updates produce changes in the standard of care, we continue to revise the protocols to reflect these updates.

Special thanks to Dr. Tania White, Regional Medical Director, for her ongoing contributions and for being open to our ideas. **Thanks to everyone who assisted in this project.**

3.0 Administrative Guidelines

3.1 Abandoned Infant

3.1.1 Overview (Virginia Safe Haven Law)

The Code of Virginia § 18.2-371.1 identifies that parents may surrender their newborn infant to EMS personnel. The code reads, "… parent safely delivered the child to a hospital that provides 24-hour emergency services or to an attended rescue squad that employs emergency medical technicians, within the first 14 days of the child's life. In order for the affirmative defense to apply, the child shall be delivered in a manner reasonably calculated to ensure the child's safety…" If a provider is approached by this situation, the provider should attempt to gain as much information concerning the infant as possible from the parent. Once the infant has been turned over to EMS, the infant should be transported to the closest emergency room. Explain the situation to the Charge Nurse and be sure to document their name on your call sheet. The hospital will notify social services.

3.2 Air Medical Utilization

3.2.1 Overview

Air Medical Services (AMS) are a valuable resource in the REMSC. It is important that EMS personnel utilize consistent and appropriate criteria when requesting air medical service for assistance with patient care and transport. These criteria are consistent with national AMS utilization criteria. It is important that review of appropriate helicopter utilization be a part of EMS training, as well as a component of agency, and regional level retrospective quality improvement process.

3.2.2 Management

The helicopter is an air ambulance and an essential part of the EMS system. It may be considered in situations where:

1. The use of the helicopter would speed a patient's arrival to a hospital capable of providing definitive care and that is felt to be significant to the patient's condition, or;
2. If specialty services offered by the air medical service would benefit the patient prior to arrival at the hospital.

The following criteria should be used when considering use of an air medical service:

The patient's condition is a "life or limb" threatening situation demanding intensive, multidisciplinary treatment and care. This may include, but is not limited to:

- Critically Ill or Injured Patients who would benefit from critical care and/or rapid transport that is not available from the ground providers

- Critical burn patients, pediatric trauma, or other specialty cases where appropriate definitive care is not available locally and the patient requires transport outside the region

- Critically ill medical patients requiring care at a specialized center to include, but not be limited to, acute stroke or ST elevation MI as defined by protocol

Patients in cardiac arrest who are not hypothermic are generally excluded as candidates for air transport

Dispatch, Police, Fire, or EMS should evaluate the situation/condition and, if necessary, place the helicopter on standby.

The helicopter may be requested to respond to the scene:

- If ALS personnel request the helicopter
- If BLS personnel request the helicopter when ALS is delayed or unavailable
- In the absence of an EMS agency, when any emergency service requests it, if it is felt to be medically necessary

When EMS arrives, they should assess the situation. If the ***most highly trained EMS personnel on scene*** determine the helicopter is not needed, it should be cancelled as soon as possible.

Air medical services may be considered in situations where the patient is inaccessible by other means, or if utilization of existing ground transport service threatens to overwhelm the local EMS system. In this case a specialty unit with rescue capabilities (i.e. hoisting equipment or FLIR) may be the most appropriate resource.

An EMS service should not wait on the scene, or delay transport to wait for the arrival of a helicopter. If the patient is packaged and ready for transport, the EMS service should initiate transport to the hospital and reassign the landing zone. The helicopter may intercept an ambulance during transport at an alternate landing site. If a hospital helipad is utilized for patient pick-up, you should notify hospital security that you will be using their LZ.

THIS IS A GUIDELINE AND IS NOT INTENDED TO SPECIFICALLY DEFINE EVERY CONDITION IN WHICH AIR MEDICAL SERVICES SHOULD BE REQUESTED. GOOD CLINICAL JUDGEMENT SHOULD BE USED AT ALL TIMES.

Transfer of Patient Care, Documentation, and Quality Improvement:

As with other instances where care of a patient is transferred, all patient related information, assessment findings, and treatment will be communicated to flight crew.

At the completion of the EMS call, all of the details of the response, including, but not limited to, all patient related information, assessment findings, and treatment, must be documented on a PPCR.

With helicopter utilization, as with all EMS responses, the treatment and transportation of patients will be reviewed as a part of a Quality Improvement process and providers should complete a shared-concern QI form to advise the REMS Council of the event.

3.2.3 Guidelines for Helicopter Utilization for Scene Response

Generally, air transport should be considered when there is a loss of the patient's airway and/or prolonged ground transport time due to a significant distance to the appropriate receiving facility (such as a burn center or pediatric trauma center).

3.2.3.1 *Adult Major Trauma*

1. GCS less than or equal to 8
2. Systolic blood pressure is less than 90 mmHg and/or unstable vital signs
3. Penetrating injuries to head, neck, torso or proximal extremities
4. Two or more suspected proximal long bone fractures
5. Suspected flail chest
6. Suspected spinal cord injury or limb paralysis
7. Amputation (except digits)
8. Suspected pelvic fracture
9. Open or depressed skull fracture

3.2.3.2 *Pediatric Major Trauma*

1. Respiratory failure (central cyanosis, bradypnea, capillary refill > two seconds)
2. GCS less than 13
3. Penetrating injuries of the trunk, head, neck, chest, abdomen, or groin.
4. Two or more proximal long bone fractures
5. Flail chest
6. Combined system trauma that involves two or more body systems, injuries, or major blunt trauma to the chest or abdomen
7. Spinal cord injury or limb paralysis
8. Amputation (except digits)

3.2.3.3 *Critical Burns* **

1. Greater than 20% Body Surface Area (BSA) of partial and full thickness burns
2. Evidence of airway/facial burns
3. Circumferential extremity burns

****Note: For patients with burns and coexisting trauma, the traumatic injury should be considered the first priority, and the patient should be triaged to the closest appropriate trauma center for initial stabilization.**

3.2.3.4 *Critical Medical Conditions*

1. Suspected Acute Stroke

- Positive Cincinnati Pre-Hospital Stroke Scale

- Total pre-hospital time (time from when the patient's symptoms and/or signs first began to when the patient is expected to arrive at the Stroke Center) is less than four and one-half (4.5) hours. Consider air transport if ground transport to stroke center exceeds 30 minutes or if the patient is a candidate for treatment at a Comprehensive Stroke Center.

2. Suspected Acute Myocardial Infarction

- EKG findings indicative of an AMI with/without chest pain, shortness of breath, or other signs and symptoms typical of a cardiac event

Providers should base the decision to fly a patient on their judgment of transport time, distance to an appropriate facility, and the patient's condition.

Adopted from: New York State Department of Health- EMS Bureau

3.3 Behavioral Emergencies

There are organic, situational, and psychiatric causes of behavioral emergencies. Organic causes include toxic and deficiency states, infections, neurological diseases, cardiovascular, endocrine, and metabolic disorders. Situational causes result from an emotional reaction to a stressful event. Psychiatric disturbances are those which arise within the patient, such as psychosis, affective, and anxiety disorders.

3.3.1 Management

The pre-hospital provider should be alert and maintain scene safety in all circumstances, but particularly in cases of behavioral emergencies. Here are some recommendations to assist with managing a patient suffering from behavioral emergencies

- Identify yourself properly, be prepared to spend time with the patient

- Have a plan of action that will make the patient feel that they are being helped, which will encourage the patient to make positive decisions
- Maintain a calm and reassuring professional attitude and manner. Be aware of posture, body language, and position.
- Remove disturbing persons and/or objects from the area
- Encourage the patient to sit, relax, and talk
- Do not touch the patient without his/her permission
- Ask open-ended questions. Avoid being judgmental.
- Provide emotional support to the patient, be compassionate
- Do not argue with or shout at the patient
- Carefully explain all procedures to the patient.
- For safety reasons, do not allow patient to come between you and an exit.
- Make every attempt to provide transportation to the hospital for evaluation and contact law enforcement for assistance as needed.

3.4 Code Gray

If CPR has been initiated by EMS and circumstances arise where the pre-hospital provider believes resuscitative efforts may not be indicated, the provider should confirm that the patient is apneic and pulseless, and, when possible, note the ECG rhythm and verify absence of cardiac activity by auscultation and/or ultrasound. The provider should then contact medical control so that the on-line physician can decide whether or not to continue resuscitative efforts. Providers should alert on-line medical control that they have a potential "Code Gray" call. The provider should then summarize why resuscitative efforts may not be indicated. The provider should then report the ECG rhythm and interventions performed. Then, if, and only if, directed by on-line medical control, may the providers stop resuscitative efforts. If code gray orders are received while transporting (i.e. moving the patient into the ambulance), the providers are to continue non-emergency to the hospital in which the order was received. The deceased is to be taken to the emergency room. Under no circumstances will the providers take a patient directly to the morgue.

NOTE: Patients who are hypothermic or are victims of cold water drowning should receive FULL resuscitative efforts. Patients with electrical injuries, including those struck by lightning that may initially be pulseless and apneic, should receive FULL resuscitative efforts as well.

Any medical equipment attached or inserted into a patient MUST remain in place once a code gray order has been received. The provider is not to remove anything from the body unless specifically directed to do so by medical control or the Medical Examiner on scene. Any such actions must be fully documented within the PPCR.

3.5 Death (DOA) Management

3.5.1 Indications

Unattended deaths in the field (meaning unattended by a physician or Hospice) are the exclusive jurisdiction of the Medical Examiner. Generally, when EMS is called to verify a DOA, the scene is turned over to law enforcement who, in turn, contacts the Medical Examiner for release to a funeral home or the Medical Examiner's office for autopsy.

If a patient is determined to be dead on arrival (DOA) or if the cessation of resuscitative efforts on scene is authorized by on-line medical control, follow local protocol concerning notification of the proper law enforcement authorities and/or medical examiner. Should an unusual situation occur where transport may be necessary, EMS should only transport a DOA to a hospital.

NOTE: It is essential to maintain a Chain of Custody in regards to any DOA case involving the Medical Examiner. Providers should remain on scene until the arrival of either the Medical Examiner or law enforcement personnel.

3.5.2 Management

Providers should make every effort not to unnecessarily disrupt or disturb the scene. All DOA calls are a potential crime scene until proven otherwise. Document the following:

1. Apnea and pulselessness (no cardiac activity by auscultation and/or ultrasound)
2. Presence or absence of rigor
3. Approximate down time
4. A short medical history, including the name of the primary physician and the general condition of the scene and the body

Be attentive to the emotional needs of the patient's survivors. If possible, leave survivors in the care of family and/or friends.

NOTE: Patients who are hypothermic or are victims of cold water drowning should receive FULL resuscitative efforts. Patients with electrical injuries, including those struck by lightning that may initially be pulseless and apneic, should receive FULL resuscitative efforts as well.

A copy of the PPCR should be delivered to the Medical Examiner through the hospital EMS Coordinator in a reasonable period of time not to exceed 48 hours following the call.

As a courtesy, share the information that you have gathered with the law enforcement official in charge on the scene. Do not assume that the officer knows that he/she is the one that should make contact with the Medical Examiner. Remember, that some newer officers may not be familiar with Medical Examiner laws. As time and conditions permit, lend whatever assistance you can to the officer and any family present.

3.6 Direct Admissions

3.6.1 Indications

Ambulance crews involved in transporting direct admission patients to hospitals should be able to return to service as quickly as possible. **All 911 calls, or calls handled by state/municipal/volunteer services, shall only take patients to the ED.** Private ambulance services serve to fill the direct admission gap. It also is important that direct admission patients be properly treated and spared unnecessary costs.

3.6.2 Management

When responding to a direct admission call, ambulance crews should notify the receiving hospital's ED as early as possible to allow the ED staff to follow-up with hospital admissions. Upon arrival at the hospital, the AIC should speak directly with the ED charge nurse or appropriate hospital contact. The charge nurse and AIC will determine the following:

1. Is the direct admission patient's room ready?
2. Is the ambulance crew needed to take the patient to the room?
3. Is the crew available to take the patient to the room?

If the answer to any of the above questions is "no", the AIC will turn over care of the patient to the ED staff. The crew will then return to service as quickly as possible. If the answer to all of the above questions is "yes", the crew may assist as necessary. Any complaint or problem involving a direct admission will be resolved at a later time through direct discussion between the ED nurse manager, or appropriate hospital contact, and the chief operating officer of the pre-hospital agency, or persons designated by those individuals.

3.7 Documentation and Confidentiality

3.7.1 Indications

Under existing Virginia law, all licensed EMS agencies are required to "participate in the pre-hospital patient care reporting procedures by making available...the minimum data set on forms." Licensed EMS agencies, pre-hospital providers, and the Commonwealth of Virginia are required to keep patient information confidential.

3.7.2 Management

Each EMS agency should, in consultation with the agency's legal counsel, develop a procedure dealing with how and when patient information will be released to the patient, the patient's family, law enforcement officials, the news media, and/or any other parties requesting the information.

The procedure **MUST** include development of a release form, which will be signed by a responsible person for that patient's information.

Documentation of patient care should, at a minimum, meet the following requirements:

1. A patient care report will be written for each patient who is seen, treated and/or transported by an ambulance or personnel thereof. This report should be completed on the current written/electronic Pre-hospital Patient Care Report (PPCR) in use by the REMSC region. For medical-legal purposes, if the provider initiates the patient-provider relationship, a PPCR should be completed.
2. In addition to information required by the Commonwealth of Virginia, documentation should include the following:
    a. The patient's chief complaint
    b. Vital signs with times
    c. Treatment provided and times
    d. Electrocardiogram (ECG) interpretation
    e. Changes in the patient's condition
    f. Contact with Medical Control
    g. Any deviation from protocol
3. If a patient refuses treatment and/or transport, documentation should include the following:
    a. The patient's full name
    b. The reason for response
    c. Reason for the patient's refusal
    d. Vital signs and times (when possible)
    e. Any physical signs or symptoms that are present
    f. Perceived competency of the patient
    g. Patient's level of consciousness
    h. Names and signatures of witnesses
    i. Signature of the patient
4. When a patient is transported, a copy of the report should be left at the receiving hospital.
5. Medications may be administered by a pre-hospital provider upon an oral order or written standing order of an authorized medical practitioner in accordance with §54.1-3408 of the Code of Virginia. Oral orders shall be reduced to writing by the pre-hospital provider and shall be signed by a medical practitioner. The Regional OMD, with the agency OMD, shall approve all written standing orders. The pre-hospital provider shall make a record of all medications administered to a patient. If the patient is not transported to the hospital, or if the attending medical practitioner at the hospital refuses to sign the record, a copy of this record shall be signed by the pre-hospital provider. The provider will then have 7

days to get their OMD's signature and get the paperwork to the pharmacy in accordance with current Board of Pharmacy regulations.

6. EMS agencies are urged to develop, in consultation with legal counsel, an incident report form for quality assurance purposes, and to document any additional information relevant to the treatment and transport of patients.
7. Agencies should have a minimum set of security guidelines for narcotics boxes. Suggestions may include the following:
    a. Video cameras of areas where locked med boxes are stored
    b. Keep a current list of providers who have keys for drug boxes
    c. Keypad entry or other such security system for storage bags
    d. Designated areas where drug boxes are to be located, both in the ambulance and in the squad bay
    e. Written policy for reprimanding offenders

3.8 Durable Do Not Resuscitate Orders (DNR*)*

Validity of a DNR order is determined by the DNR meeting the requirements of "Durable Do Not Resuscitate" guidelines as described by the OEMS pursuant to 12VAC5-66 which was effective July 20, 2011. Additional information and the current DNR form are available at http://www.vdh.virginia.gov/oems/ddnr/.

3.8.1 Management

The responding pre-hospital providers should confirm appropriate DNR status immediately upon arrival. If status can not be confirmed, the responding pre-hospital providers should perform routine patient assessment and resuscitation or intervention efforts. The following procedures should be followed:

1. Determine that a valid DNR is present and in effect. It is NOT necessary that the original EMS-DNR order be present and legible copies may be accepted.
2. If the patient does not have an EMS DNR authorized "Alternate DDNR Jewelry" can be honored at any time, but it must contain equivalent information to the state form.
3. A verbal order from a physician can be honored by a certified EMS provider. The verbal order may be by a physician who is physically present and willing to assume responsibility or it may be from on-line medical control.
4. "Other" DNR orders include a physician's written DNR order that is in a format other than the state form is also acceptable. "Other" DNR orders should be honored by EMS providers when the patient is within a licensed healthcare facility or being transported between healthcare facilities.
5. Resuscitative efforts, once begun, can only be stopped with the guidance of medical control.

6. All providers are strongly encouraged to review the Virginia DNR, as there are some limitations, such as intubation and no CPR.

Comforting interventions that are encouraged include the following:

1. Open airway (no intubation or BVM) and administer oxygen
2. Suction
3. General patient comfort
4. Control of any bleeding
5. Pain medication by ALS providers, as ordered by medical control
6. Support for the patient and family members
7. Depending on the extent of the DNR wording, IV fluids may be considered

Resuscitative measures the provider should avoid include the following:

1. CPR
2. Intubation (ET tube, BIAD or other advanced airway)
3. Defibrillation
4. Cardiac resuscitative medications
5. Artificial ventilation

If questions or problems arise about DNR, the provider should contact on-line medical control. Providers should use the standard PPCR for full documentation of the DNR case, including the format and authorization for DNR and/or the order number on the form and/or bracelet in the case of an EMS-DNR.

3.9 Extraordinary Care Not Covered by this Protocol

3.9.1 Indications

There may be rare cases in which a physician providing on-line medical control may feel it is absolutely necessary to direct a pre-hospital provider to provide care, which is not explicitly listed within protocol, in order to maintain the life of a patient.

3.9.2 Management

During consultation, both the consulting physician and the ALS provider ***must*** acknowledge and agree that the order is absolutely necessary to maintain the life of the patient. The ALS provider ***must*** feel capable, based on the instructions given by the consulting physician or previous training, of correctly performing the care directed by the consulting physician. If the ALS provider receives an order for care not covered in this protocol, and is not comfortable with performing that order, or does not agree that the order is absolutely necessary to maintain the life of the patient, the provider should proceed with the directions contained in protocol 3.12.

Anytime this authority is exercised by a REMS EMS provider a QI review will automatically occur and the provider should complete a shared-concern inquiry form to notify the REMS Council of the event.

3.10 HEAR Usage & On-Line Medical control

3.10.1 Indications

To contact appropriate medical control/ HEAR radio at hospitals.

3.10.2 Management

The presence of multiple facilities in the REMS region allows for more HEAR stations. Squad patient reports should be destination specific. A squad's call for on-line medical control should be destination specific and on-line medical control will occur with the facility that is receiving the patient.

3.10.3 Hospital Report

The region as well as the hospitals are frequently inundated with patient transport and other related patient care issues. Therefore, all effort should be made to provide as much notice as possible to the receiving facility. The report should be limited to a one-minute report that highlights important areas that will impact the receiving facility. DO NOT RAMBLE ON with innocent details that are not necessary such as "the car was yellow and had out of state license plates" or "patient has a history of kidney stones 18 years ago" when the patient has a foot injury. The following format will be observed throughout the Rappahannock EMS Council region when providing a report to the receiving facility with the goal of rapid efficient transfer of information to alert the receiving facility of NECESSARY information:

Medical Patient Report – should be NO MORE THAN one minute

- Unit/Care Level
- Age and Chief Complaint
- Symptoms and PERTINENT physical exam findings
- Significant interventions
- Vital Signs
- ETA

Medical Report example: "Spotsylvania Regional this is Spotsylvania Medic 8-2, enroute with 68 year-old male patient chief complaint difficulty breathing. Patient is in moderate distress and has bilateral rales along with pedal edema and slight JVD. Patient is on CPAP and he has received 80 mg Lasix IV. Vitals are GCS of 14, blood pressure 126/59, pulse 122, respirations 36. We have an ETA of 15 minutes."

Trauma Patient Report – should be NO MORE THAN 45 seconds to one minute.

- Unit/Care Level

- BRIEF mechanism of injury
- GCS and complete Vital Signs (include RTS if available)
- Physical Exam findings that are PERTINENT
    - Head/Neck
    - Chest
    - Abdomen
    - Pelvis
    - Extremities
- ETA / Intersection location

Trauma Report example: "Mary Washington this is Stafford Medic 11-1, enroute with an adult patient from a high-speed motor vehicle crash with ejection. Patient has a GCS of 11, blood pressure 154/89, pulse 132, respirations 28, RTS of 7. Patient has a large scalp laceration with controlled bleeding, crepitus in the left chest with diminished breath sounds, abdomen is distended and tender, pelvis stable, closed fracture of left femur. ETA 10 minutes."

3.11 Impaired Field Providers

3.11.1 Indications

Field providers will NOT appear for duty, be on duty, or respond via privately-owned-vehicle (POV) while under the influence of any prescribed, or over-the-counter, medications that could impair their ability to drive or otherwise provide quality patient care. Field providers will ***not*** appear for duty, be on duty, or respond POV while under the influence of intoxicants or illegal substances, to any degree whatsoever, or with an odor of intoxicants on their breath.

3.11.2 Management

In the event that it can be reasonably thought that a provider is under the influence or have an odor of intoxicants on their breath during an emergency call, the provider shall be removed from the scene of the call, and, after an investigation where they are found to be in violation, the provider will be subject to disciplinary action by the OMD.

3.11.3 Actions

The provider may be asked by the REMSC, and/or OMD, to take a drug or alcohol test. If the drug/alcohol test is positive, confirmatory testing may be indicated and paid for by the individual. The provider may, at his or her own expense, have a test performed using the same sample. The above expenses may be taken care of by the individual agencies per policies.

3.12 Inability to Carry Out a Physician Order

3.12.1 Indications

Occasionally, a situation may arise in which a physician's order cannot be carried out, the ALS provider is unable to administer an ordered medication, a medication is not

available, contact is not possible with on-line medical control, it is out of the provider's scope of practice, or a physician's order is inappropriate.

3.12.2 Management

If a provider is unable to carry out the physician order, the provider ***must*** notify the consulting physician immediately that the order could not be carried out and give the reason why it could not be carried out. The provider ***must*** then indicate on the PPCR what was ordered, and the time and the reason the order could not be carried out.

In situations where the pre-hospital care provider is unable to establish communications with a medical command facility after at least two attempts each, on two different means of communications, the provider may:

- provide care within their scope of practice
- follow the appropriate protocol as standing order indicated by your level of certification
- document the issue on a shared concern inquiry form and route it through the QI process.

3.13 Infection Control

3.13.1 Exposure to Blood and Body Fluid Provider Responsibilities

As soon as possible after exposure to blood and/or body fluids:
Eyes: Irrigate with clean water, saline, or sterile water
Mouth and Nose: Flush with water
Skin: Wash with soap and water
Clothing: Change contaminated clothing promptly and inspect the skin for signs of openings and contamination
Needle-sticks: May be squeezed, or "milked", and wash with soap and water

Upon arrival at the hospital ED, or as soon as possible thereafter, notify a hospital official/representative (ED physician, ED nurse manager, charge nurse) of any possible exposure (or follow your department's exposure control plan). Notify the agency's designated Infection Control Officer (ICO) as soon as possible of any possible exposure, and of emergency, non-emergency, and follow-up care.

Obtain and complete, before leaving the hospital, a REMSC infectious disease exposure report, which is available in the emergency department, or agency form (follow your department's exposure control plan). Use one exposure report form for each provider. Distribute copies as indicated on the report.

3.13.1.1 *Exposure: Hospital Responsibilities*

Notify the EMS agency's designated ICO when a patient transported by its providers is determined to have an airborne, or blood borne, infectious disease, and an exposure has occurred. Furnish the pre-hospital providers with a REMSC infectious disease exposure

report(s). Providers may use their agency's form, or their designated ICO may complete this, and all other, required forms.

After receiving the completed exposure report, perform the appropriate testing on the source patient and render appropriate initial treatment to the exposed provider as determined by the ED physician (or follow your department's exposure control plan for treatment of the provider). Providers have the right to refuse treatment after informed consent.

Furnish test results to the exposed providers, and agency designated ICO, as soon as possible, or within 48 hours after the exposure (*as outlined in the Ryan White Law (Public Law 101-381*).

Notify the EMS agency's designated ICO, in writing, of the exposure, ensuring that providers get any emergency treatment indicated, and that all appropriate hospital reports are completed. Providers must contact their agency's designated ICO to report the exposure for emergency, non-emergency, or follow-up care.

All treatment for exposure management will follow the published recommendations set forth by the U.S. Public Health Department (the Centers for Disease Control and/or the Advisory Committee on Immunization Practices).

3.13.1.2 *Exposure: EMS Agency Responsibilities*

Appoint and educate, by the first of July each year, one individual to serve as the agency's designated ICO. This individual will be familiar with the agency's infectious disease control plan, the REMSC infectious disease exposure report, and this protocol. The individual will also be familiar with airborne and blood borne pathogens, other infectious diseases, the OSHA blood borne pathogen standard 1910.1030, and the recommendations of the CDC. The individual's name, and that of the agency's OMD, will be furnished each year to the REMSC.

Ensure that decontamination procedures, according to the agency's exposure control plan, are completed ***immediately***, or as soon as possible, after the incident.

Notify the pre-hospital agency's designated ICO of the exposure, or possible exposure, and the actions that have been taken. Notify the designated ICO from any other agency who may have had personnel exposed during the incident.

Respond to the receiving hospital's infection control liaison immediately after receipt of written notification of an exposure. Work with the agency OMD, or other designated physician, and the receiving hospital to ensure that the provider has received appropriate follow-up care, all appropriate reports have been completed and filed, and that the incident has been brought to a closure.

3.14 Inter-facility Transfer of Acutely Ill/Injured Patients

3.14.1 Indications

A physician requests an inter-facility transport of a patient for whom procedures and/or medications have been initiated that are beyond the normal scope of the EMS agency's protocol or practices. These transfers would generally not be initiated through 9-1-1 dispatch, but rather through a private service (ground or air.)

3.14.2 Management

The inter-facility transport should be performed by an ALS-equipped and ALS-staffed ambulance and should take place only after the receiving physician has conferred with the sending physician. Prior to dispatch, the sending physician/institution will provide the EMS agency with a patient report that includes the patient's condition and any special treatment the patient is receiving. If the treatment is outside of the provider's normal scope of practice, the agency's Operational Medical Director (OMD) MUST be contacted for transport approval and to determine if other appropriate personnel should accompany the patient. It is not acceptable to get orders and/or extend the scope of practice from a physician at the hospital where the transfer originates. During transport, questions regarding patient care should be directed to the transferring physician or the agency OMD rather than the receiving hospital.

The Attendant-in-Charge (AIC) should request a patient report from the health care personnel on scene and should obtain the pertinent paperwork to go with the patient, including the face sheet, transport sheet, lab work, x-rays etc. If the patient is a "No Code" or has a valid "Do Not Resuscitate" order, a written order, including a pre-hospital DNR order, must accompany the patient. Assessment by the AIC should not delay transport.

Once the ambulance crew arrives at the transferring or receiving hospital, and the patient's condition has deteriorated to a life-threatening situation where immediate intervention is necessary, the AIC will consult with the attending physician if he/she is available. If the attending physician is not immediately available, the AIC should contact the agency OMD or on-line medical control for additional instructions.

An ALS provider may monitor and administer standard medications as ordered by the patient's transferring physician with on-line medical control as needed during transfer. The administration of any medication not covered by protocol will be recorded on the Pre-hospital Patient Care Report, noting the name of the transferring physician, Medical Control contacted, dosage of the medication, and the route administered. Only approved medical control providers, OMDs, and on-line medical control may give permission to deviate from protocol, unless a valid physician wishes to ride along during transport.

3.15 Patient and Scene Management

3.15.1 Indications

An ordered and orderly management of the emergency scene will improve pre-hospital patient care. Although questions concerning authority can arise, they should be handled quickly and quietly.

3.15.2 Management of the Patient

The AIC on the first arriving unit will have the authority for patient care and management at the scene of an emergency until relieved by a provider of higher certification. Authority for management of the emergency scene, exclusive of medical control over the patient, will rest with the appropriate on-scene public safety officials, fire, law enforcement etc.

If other medical professionals at the emergency scene offer or provide assistance in patient care, the following will apply:

1. Medical professionals who offer their assistance at the scene should be asked to identify themselves and their level of training. The pre-hospital provider should request that the individual provide proof of their identity if that person wants to continue to assist with patient care after the ambulance has arrived.
2. Physicians are the only medical professionals who may assume CONTROL of the patient's care. Pre-hospital providers should recognize the knowledge and expertise of other medical professionals and use them for the best patient care possible. All medical professionals who assist or offer assistance should be treated with courtesy and respect.
3. The authority for medical control of the pre-hospital provider's procedures rests in this protocol adopted by the EMS agency, the agency OMD, and the Regional Medical Director.
4. A physician at the scene, who renders care to a patient, prior to arrival of an EMS unit, may retain ALS Medical authority for the patient if he/she desires. The pre-hospital provider will advise the physician who wants to supervise or to direct patient care that the physician MUST accompany the patient to the receiving hospital to maintain continuity of patient care. If requested, the physician will be provided access to the services and equipment of the ambulance and/or EMS agency. Documentation of these events will be complete and will include the physician's name. Should the physician not wish to ride along to the hospital with the patient, that physician's instruction may be ignored and the providers must follow their protocol.
5. If there is a conflict about patient care or treatment protocol, the pre-hospital provider will contact on-line medical control, via the HEAR radio or cellular telephone, for instructions. Under no circumstances should this conflict interfere with prudent patient care.

In the event there is a question about the number of patients/victims on scene, providers should make a reasonable effort to utilize all resources available to confirm that all patient/victims have been found and are accounted for.

The five levels of pre-hospital EMS certification recognized at this time by the Commonwealth of Virginia are as follows:

1. Emergency Medical Responder (EMR) whose authority is superseded by the
2. Emergency Medical Technician (EMT) whose authority is superseded by the …
3. Advanced Emergency Medical Technician (AEMT) whose authority is superseded by the…
4. Emergency Medical Technician - Intermediate (EMT-I) whose authority is superseded by the…
5. Emergency Medical Technician - Paramedic (EMT-P) whose authority is superseded by the Physician

The July 2011 revision of the REMS protocols provided a "new" category of critical care paramedic/advanced practice paramedic. In order to qualify for this category the provider must be a valid Nationally Registered EMT-Paramedic and have successfully completed an advanced practice curriculum and/or a critical care course (such as CICP, FPC, CCEMTP, etc). In order to be able to practice as a CCP/AP in the REMS Council there must be validation of this training on-file at the REMS Council in the provider's file AND the OMD where the provider is practicing (or the regional OMD) must certify their capabilities for this level of practice. Duration of the OMD validation will be indicated on the paperwork and limitations/duration are at the discretion of the OMD. Without valid current paperwork on file at REMS, the provider will ONLY be authorized to practice at their Virginia EMS Certification level and are NOT considered CCP/AP even with current critical care certifications.

3.15.3 Assessment of the Patient

Medical problems account for the bulk of cases handled by pre-hospital providers. Proper initial assessment and focused assessment of the patient, and an accurate history, can result in a significantly higher level of patient care and the effective treatment of the patient's signs and symptoms.

Trauma is a leading cause of death in America and a trauma assessment is indicated for any person whose mechanism of injury results in an injury to the patient. In many cases injuries may not be clearly evident to the patient or the provider, so a more detailed head-to-toe exam should be performed. When the provider arrives on scene to find an injury that has already been covered, they are still responsible for understanding what is under the dressing so direct visualization may be required in order to completely understand the patient's condition.

Scene size-up should be completed as quickly and efficiently as possible in order to determine the scope of the incident and to begin assessing the resources necessary to manage the patient(s). During the size-up providers should:

- Consider the safety of the EMS team and the patient
- Assess need for BSI and personal protective equipment
- Complete an overview of the scene and the patient to determine the mechanism of injury. If appropriate, take control of the C-Spine or direct another competent provider to maintain in-line immobilization whenever there is a MOI consistent with the potential for a C-Spine injury.
- Determine the quantity and location of patients
- Determine what resources will be needed and begin assembly of these resources EARLY in the scene management.

Initial patient assessment should be performed rapidly, and all life-threatening problems should be treated immediately. Do not become distracted by visually significant patient conditions (such as severe abrasions) or other distractions on the scene. During the initial patient assessment providers should:

- Form a general impression of patient and quickly/accurately determine if they are critically sick or injured
- Assess their **airway** and ensure that the patient has an open/patent airway.
    - Assist if needed, with chin lift, jaw thrust, or other airway adjuncts.
- Assess **breathing** and ensure adequacy of respirations and ventilation.
    - Includes auscultation of breath sounds with a stethoscope and applying Oxygen as needed.
- Assess **circulation** by checking skin color, temperature, and condition.
    - Check capillary refill and assess for obvious hemorrhage.
- Assess **disability** and perform a rapid neurological survey using the AVPU mnemonic and classify the patient as one of the four categories.
- **Expose** and examine the patient appropriate to their condition
    - Remove necessary clothing appropriate to the patient's condition, examine and evaluate medical conditions and problems.
    - Always be aware to maintain dignity and protect the patient from the environment as well.
- Determine the need for immediate transport and destination requirements
    - Does the patient require a trauma center, a pediatric specialty facility, a STEMI/PCI facility, etc?
        - The moderate or major trauma patient should be transported as quickly as possible and on-scene time should be limited to ten (10) minutes following extrication or disentanglement.
    - When requesting additional resources, such as ALS or air medical transports, care should not be delayed waiting for additional support when transport can begin.
    - DO NOT WAIT ON THE SCENE FOR ALS, meet them en-route to the hospital.

Initial Patient Management - Based on the patient's presentation and chief complaint, begin appropriate treatment. Find the appropriate protocol based on the patient's chief complaint. Sometimes there are multiple complaints and you may need to refer to

multiple protocols to best meet the patient's needs. Follow the protocol for your current valid certification level and utilize on-line medical control for questions or as indicated in the protocol. Some portions of the "secondary" or "focused" assessment may need to be completed, such as allergies and medication, in order to safely begin treatment listed in the protocols. It is not intended that every provider perform every item in the exact order of this guideline. However, it is expected that the provider appropriately manage patients and gather necessary information to manage the patient's condition.

Secondary or Focused Assessment – After the initial ABC's have been assessed and managed and the appropriate initial treatment has begun, perform a complete head-to-toe exam in cases of trauma or unknown circumstances or perform a focused system assessment based on the chief complaint (if not already done)

- Neurological, Cardiovascular, Respiratory, etc.
- Assess vital signs (pulse, BP, respirations, temp, breath sounds, skin)
- Obtain a complete medical history (SAMPLE)
- Determine specifics related to chief complaint (OPQRST)
- Perform a supplemental assessment
    - Initiate Cardiac monitoring
    - Utilize Pulse oximetry
    - Determine blood glucose level
    - Monitoring temperature as appropriate
    - Performing Capnography

On-going Assessment – Once treatment has been initiated for a patient, providers should reassess the patient's condition regularly looking for change and response to interventions. When you have performed an intervention always reassess the patient's condition to evaluate a response to the therapy. ABC's and VS should be checked no less than q 5 minutes for critical or unstable patients and q 10-15 minutes for non-critical or stable patients. There should be at least two (2) complete sets of vital signs on the patient care reporting.

3.16 Patient Refusal

3.16.1 Indications

1. If a patient (or the person responsible for a minor patient) refuses care after EMS providers have been called to the scene, whether injured or not.
2. If the EMS provider knows there is an injury or illness, but the patient (or the person responsible for a minor patient) refuses care and is transported to their doctor or an ED by friends or acquaintances.

3.16.2 Management

Complete an initial assessment (including vital signs where possible) of the patient, with particular attention to the patient's neurological status. Determine if the patient is competent to make a valid judgment concerning the extent of their illness or injury, head injury, ETOH use, or other substance ingestion.

If the EMS provider has doubts about whether or not the patient is competent to refuse care, the provider should seek guidance from on-line medical control. Clearly explain to the patient, and all responsible parties, the possible risks and/or overall concerns associated with refusal of care. The statement "risk of death and/or permanent disability" must be verbalized. Avoid performing any advanced life support procedures on a patient who has refused pre-hospital care.

Complete the PPCR, clearly documenting the initial assessment findings and the discussions with all involved persons regarding the possible consequences of refusing treatment and/or transport. A second EMS provider should witness the discussion. After the form has been completed, have the patient, or the person responsible for a minor patient, sign the refusal section provided on the PPCR. If possible, have two witnesses present and secure their signatures.

Patients who wish to be transported should be transported. When abuse of the 911 system is raised as a concern by a squad to the OMD or the regional council, proper referral to law enforcement will ensue after notification.

Providers should realize the availability of on-line medical control for any patient contact, including refusals. EMS providers may obtain a patient refusal without contacting medical control providing the risk statement above has been made and documented.

If on-line medical control is contacted, the PPCR may be presented to the on-line physician for signature.

3.17 Quality Improvement

3.17.1 Indications

The REMS Quality Improvement (QI) Committee is responsible for implementing a risk management program, including ongoing evaluation of EMS systems and compliance by EMS providers to the standards of care. Each agency is also responsible for implementing a quality improvement program. Quarterly Quality Management Reports are to be submitted to the REMS Council office per your agency's OMD. Non-compliance with this policy may reflect negatively on your agency for grant consideration.

3.17.2 Management

The REMS Regional QI Committee will provide a positive feedback system through provider input, hospital input, informal methods, and recognition events. Further, the QI Committee will make recommendations to the OMD, hospital, and the Training and Guidelines Committee on training needs and policy. Squads in the REMSC region should follow approved QI policies and be involved with their OMD in both commendations and disciplinary actions.

3.18 Abuse & Neglect

3.18.1 Indications

Domestic violence is physical, sexual or psychological abuse and/or intimidation, which attempts to control another person in a current or former family, dating, or household relationship. The recognition, appropriate reporting, and referral of abuse is a critical; step to improving patient safety, providing quality health care, and preventing further abuse.

Abuse is the physical and/or mental injury, sexual abuse, neglect treatment, or maltreatment of a child, senior citizen, or incapacitated adult by another person. Abuse may be at the hand of a parent, caregiver, spouse, neighbor, or adult child of the patient. The recognition of abuse and the proper reporting is a critical step to improve the health and wellbeing of these at-risk populations.

3.18.2 Precautions/Contraindications

Ensure compliance with "Mandatory Reporter" status under the Code of Virginia.

The Code of Virginia 63.2-1606 for Adult/Elder Abuse and 63.2-1509 for Pediatric Abuse identifies any emergency medical personnel certified by the Board of Health as a mandated reporter. Reports of suspected cases should be made immediately.

Assessment of an abuse case based upon the following principles:

-Protect the patient from harm, as well as protecting the EMS team from harm and liability

-Suspect that the patient may be a victim of abuse, especially if the injury/illness is not consistent with the reported history

-Respect the privacy of the patient and family

-Collect as much information and evidence as possible and preserve physical evidence.

3.18.3 Management

1. Assess the/all patient(s) for any psychological characteristics of abuse, including excessive passivity, compliant or fearful behavior, excessive aggression, violent tendencies, excessive crying, behavioral disorders, substance abuse, medical non-compliance, or repeated EMS requests. This is typically best done in private with the patient.

2. Assess the patient for any physical signs of abuse, especially any injuries that are inconsistent with the reported mechanism of injury. Defensive injuries (e.g. to forearms), and injuries during pregnancy are also suggestive of abuse. Injuries in different stages of healing may indicate repeated episodes lf violence.

3. Assess all patients for signs and symptoms of neglect, including inappropriate level of clothing for weather, inadequate hygiene, absence of attentive caregiver(s), or physical signs of malnutrition.

4. Immediately report any suspicious findings to both the receiving hospital (if transported) and to the appropriate social services agency.

- Child abuse or neglect, contact Child Protective Services at 1-800-552-7096
- Elder abuse or neglect (including incapacitated adults), contact Adult Protective Services at 1-888-832-3858

If sexual abuse/assault is suspected contact your local Police/Sheriffs Dept. and notify the receiving facility (MWH) that you are transporting a" Code 27" patient. This will alert them to the need of the SANE (Sexual Abuse Nurse Examiner) team. Be sure to preserve all evidence which is very important to potential court proceedings

3.19 Transporting Patients to the Nearest Emergency Facility

3.19.1 Indications

Ambulances in this region will transport emergency patients to the nearest facility with full emergency capability (no urgent care businesses). No family member, friend, or even physician (except authorized on-line medical control), can instruct EMS personnel to bypass an emergency facility. With the exception of certain very specific groups such as certain types of trauma patients (burn patients, pediatrics, etc.), emergency patients should be transported to the nearest facility.

3.19.2 Management

Patients who have emergency conditions (typically cardio-respiratory events) require treatment to be the fastest possible. Transports out of the immediate region use valuable emergency resources and failure to go to the nearest qualified facility could subject the EMS community to legal consequences if the patient developed any problems during transport.

Patients who can safely tolerate a direct trip to a more distant facility (typically a tertiary care center, or a preferred destination) should not be classified as emergency patients. Ambulances may bypass a closer emergency facility during a disaster, mass casualty or similar incident (to adequately distribute low priority patients to other area hospitals so as not to inundate the main area hospital, this decision will usually be made by the EMS officer at the incident in consultation with the regional hospital coordination center (RHCC)), when the closest emergency facility is temporarily shut down (for an emergency situation such as a fire in the hospital or other event), or when the closest emergency facility informs the EMS provider to bypass their facility due to other emergency conditions.

When there is a choice of hospitals that are equal distance and equal capabilities appropriate to the patient's condition, the patients should be given a choice of which facility they would like to go. For example, the patient may be asked if they would prefer an HCA facility or a MWH facility. A patient could then be transported to the appropriate facility based on the patient's decision.

3.20 Treatment of Minors

3.20.1 Indications

Pre-hospital providers are called to treat a young patient and there is no parent or other person responsible for the minor present. **NOTE**: Under Virginia law, a minor is defined as a person under the age of 14 years.

3.20.2 Management

The pre-hospital provider may treat and/or transport any minor who requires immediate care to save his/her life or to prevent serious injury, under the doctrine of implied consent. If a minor refuses care, the provider should contact on-line Medical Control for additional instructions (see section 3.16 Patient Refusal). If a minor is injured or ill, but not critical, and no parental contact is possible, the provider should contact on-line medical control for additional instructions. The provider should ALWAYS act on the side of appropriate patient care. Careful and complete documentation is ALWAYS important. If the ill or injured patient is a young child and the parent is present, the pre-hospital provider should contact medical control and consider the following in regard to transport:

1. Transport conscious children with a parent unless it interferes with proper patient care.
2. In cases of major trauma or cardiopulmonary arrest, exercise judgment in allowing parents to accompany the child in the ambulance.
3. Allow the parent to hold and/or touch the child whenever possible.

Both parent and child will respond to open and honest dialogue. If the minor is ill and parental consent is denied, medical control should be contacted for further instructions.

3.21 Sepsis PEARLS

3.21.1 Indications

Prehospital providers are often called to treat a patient that may be experiencing signs and symptoms indicative of sepsis, severe sepsis, or septic shock who are in need of immediate stabilizing medical treatment.

Sepsis is a potentially life-threatening complication of an infection. Sepsis occurs when chemicals released into the bloodstream to fight the infection trigger inflammatory responses throughout the body. This inflammation can trigger a cascade of changes that can damage multiple organ systems, causing them to fail. If sepsis progresses to septic shock, blood pressure drops dramatically, which may lead to death.

Anyone can develop sepsis, but it's most common and most dangerous in older adults or those with weakened immune systems. Early treatment of sepsis, usually with antibiotics

and large amounts of intravenous fluids, improves chances for survival (Mayo Clinic 2015).

3.21.2 Management

Prehospital providers shall assess the patient as normal and be highly suspicious of the following universal indicators of severe sepsis:

- SIRS – Systematic Inflammatory Response Syndrome
- Infection
- Organ Dysfunction

Prehospital agencies are also encouraged to develop plans and procedures for implementation of prehospital lactate testing at the patient's bedside in the ambulance. This lactate level would provide a much more precise measurement and positive pertinent finding for specific sepsis screening. When treating based on lactate levels use current research guidelines for parameters.

Prehospital providers should refer to the reference section for a flowchart on ADULT SEPSIS SIGNS & SYMPTOMS for specific sepsis screening criteria.

If a patient screens positive for Severe Sepsis as per the aforementioned flowchart, the field provider shall immediately contact the receiving hospital and give (at a minimum) an abbreviated patient report. Be sure to state "Code Sepsis" at the beginning of the report. Treat patient as appropriate per established protocols.

Initiating a Code Sepsis from the field will allow for immediate and timely interventional/definitive care for the patient upon presentation in the Emergency Department.

If a Sepsis Alert is called in the field, EMS patients have a statistically significant reduced mortality rate, length of hospital stay, and reduced healthcare costs.

PRE-HOSPITAL PATIENT CARE PROTOCOLS

BASIC LIFE SUPPORT/ADVANCED LIFE SUPPORT

RAPPAHANNOCK SINCE 1976

EMS COUNCIL INC.

Board Approved October 2017

Rappahannock EMS Council
435 Hunter Street
Fredericksburg, VA 22401

PRE-HOSPITAL PATIENT CARE PROTOCOL

MEDICAL PROTOCOLS

Section II

Rappahannock EMS Council
435 Hunter Street
Fredericksburg, VA 22401

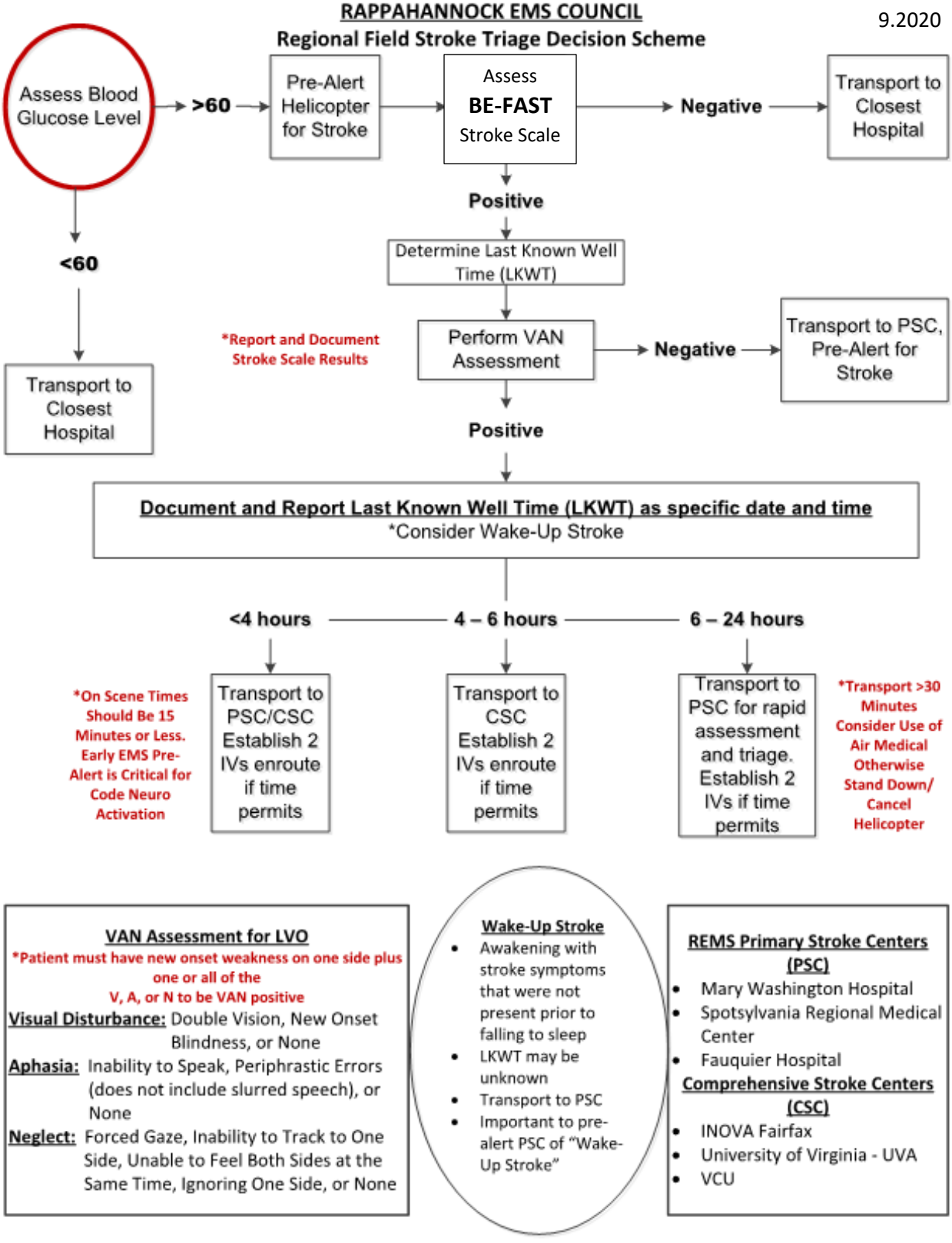
BASIC LIFE SUPPORT/ADVANCED LIFE SUPPORT
ADMINISTRATIVE PATIENT CARE PROTOCOL

BOARD APPROVED OCTOBER 18, 2017

9.2020

RAPPAHANNOCK EMS COUNCIL

Regional Field Stroke Triage Decision Scheme



VAN Assessment for LVO

*Patient must have new onset weakness on one side plus one or all of the V, A, or N to be VAN positive

Visual Disturbance: Double Vision, New Onset Blindness, or None

Aphasia: Inability to Speak, Periphrastic Errors (does not include slurred speech), or None

Neglect: Forced Gaze, Inability to Track to One Side, Unable to Feel Both Sides at the Same Time, Ignoring One Side, or None

Wake-Up Stroke

- Awakening with stroke symptoms that were not present prior to falling to sleep
- LKWT may be unknown
- Transport to PSC
- Important to pre-alert PSC of "Wake-Up Stroke"

REMS Primary Stroke Centers (PSC)

- Mary Washington Hospital
- Spotsylvania Regional Medical Center
- Fauquier Hospital

Comprehensive Stroke Centers (CSC)

- INOVA Fairfax
- University of Virginia - UVA
- VCU

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PATIENT CARE PROTOCOLS

Universal Patient Care/Initial Patient Contact Protocol	
Criteria: Should be used for any patient contact	
EMR	Establish Scene Safety Utilize Appropriate PPE Request Additional Resources, as needed Consider need for C-Spine, if trauma patient If patient is in Cardiac Arrest, go to Cardiac Arrest algorithms
B	Perform Primary and Secondary assessments Obtain vital signs (HR, RR, BP, Temp, and pain scale) Position/open airway manually, and utilize Oral/Nasal airway as necessary. Administer Oxygen as needed to assure SpO2 94-99%. Assess for and treat for shock (body positioning and warming).
GO TO APPROPRIATE PROTOCOL BASED ON ASSESSMENT FINDINGS	
B	**Initial Procedures May Include:** Monitor oxygen Saturation (goal is 94-99%) Monitor capnography (goal is 35-45 mmHg) Monitor blood pressure (goal is >90 SBP, MAP >60) Check blood sugar Obtain 12 lead EKG
A	**Initial Procedures May Include:** Provide IV access
I	**Initial Procedures May Include:** Perform 4/12 lead interpretation

Notes:

1. Decontaminate and remove patient clothes if they have been exposed to any dangerous or noxious substances
2. EMS reports must be completed in compliance with OEMS Rules and Regulations
3. Timing of transport should be based on patient's clinical condition
4. All patient care must be appropriate for your level of training and as authorized by your OMD
5. It may be necessary to reference several protocols while treating a patient. Refer to the appropriate protocols and provide the required interventions as necessary
6. Airway management, oxygen administration, IV procedures, and cardiac monitoring should be performed as indicated based on the results of the patient assessment or protocols
7. EMT's may conduct a 12 Lead EKG and transmit to the Emergency Department, but may not interpret the rhythm

Cardiac Arrest- Unknown Rhythm

Criteria: 1: Any medical cardiac arrest or near-arrest patient, including cardiac dysrrthmias such as tachycardias, bradycardias, and ineffective cardiac rhythms (VF, PEA, IVR, etc.). Treat with the appropriate algorithm within your scope of practice
2. In all cases, attempt to determine cause of the problem and resolve or treat appropriately

B	Recommend use of automated chest compression device and CPR feedback mechanisms. Movement and/or transport of the patient while performing manual CPR is not recommended. Consider elevating patient's head 30 degrees if using mechanical CPR device Insert BIAD "Rescue Airway" such as King, Combitube, iGel, and ventilate at rate of NO FASTER THAN 1 every 5-6 seconds
A	Evaluate for and treat any causes of cardiac arrest (ex: hypovolemia- treat with 20 cc/kg isotonic fluid boluses; or any other special circumstances in Special Circumstances Resuscitation Protocol
I	Upon return of spontaneous circulation (ROSC) consider placing an endotracheal tube. DO NOT STOP COMPRESSIONS or STOP RESUSCITATION to place endotracheal tube

Notes:
1. Patients that have ROSC should be stabilized to ensure optimal patient outcome. Recommendation is that the patient have 10 minutes of spontaneous circulation (see ROSC algorithm) PRIOR to transporting the patient
2. Immediately return to chest compressions after any rhythm or pulse check, pauses to deliver a shock should last no more than 5 seconds; have defibrillator charged and ready to go prior to stopping compressions
3. ACLS/PALS treatment algorithms should be utilized - see enclosed references. ROSC algorithm is based on adult patient, adjust for pediatric ROSC and use weight-based dosing and age-appropriate dosing. Pediatric patient is one with no signs of puberty.
4. If appropriate, contact medical control for Code Grey after potential causes have been corrected and patient remains unresponsive to therapy
5. Cardizem (Diltiazem) is contraindicated in patients with history of Wolf-Parkinson-White Syndrome (WPW). Lopressor may be substituted based on drug availability
6. Consider halving the dosage of medications in patients with renal failure, hepatic failure, and/or patients >70 years of age
7. Depth, rate of compressions and ventilation rate per current ECC guidelines

Medical – Cardiac Arrest: Special Resuscitation Orders

Criteria: Patients found in cardiac arrest, from a possible cause not covered by standard ACLS/PALS algorithms

P

If patient is found in cardiac arrest with one of these causes suspected, use appropriate ACLS/PALS algorithm while considering:

Electrolyte abnormalities:

Hyperkalemia: Administer **Calcium** 1 g (*pediatric dose 20 mg/kg, max dose 1 g*) and **Sodium Bicarbonate** 50-100 mEq, (*pediatric dose 1-2 mEq/kg to max dose 100 mEq*) through separate IV lines

Hypomagnesia **(**Torsades**):** Administer **Magnesium** 1-2 g (*pediatric dose 25-50 mg/kg, max dose 2 g)*

Toxins:

Carbon Monoxide**:** Mix **Hydroxocobalamin** according to manufacturer's recommendations. Administer 5 g, (*pediatric dose 70 mg/kg, max dose 5 g*) repeat once if patient does not improve after completion

Tricyclic Antidepressant OD**:** Administer **Sodium Bicarbonate** 50-100 mEq (*pediatric dose 1-2 mEq/kg, max dose 100 mEq*)

Medication Summary:

Calcium (Calcium Chloride): 1 g (*pediatric dose 20 mg/kg, max dose 1 g*)
Hydroxocobalamin (Cyanokit): 5 g Repeat once (if needed) (*pediatric dose 70 mg/kg, max dose 5 g*)
Magnesium Sulfate: 1-2 g (*pediatric dose 25-50 mg/kg, max dose 2 g)*
Sodium Bicarbonate: 50-100 mEq (*pediatric dose 1-2 mEq/kg to max dose 100 mEq*)

Notes:
1. Hyperkalemia – consider in patients with dialysis, crush syndrome, profound dehydration. Medications should be given as slow IVP
2. Hypomagnesia – consider with overuse of diuretics, chronic alcoholism/malnutrition, renal failure. May present with Torsades de Pointes. Medications should be given as slow IVP
3. Carbon Monoxide – consider with exposure to combustion in enclosed space (house fire, suicide attempt); administer Cyanokit over 15 minutes

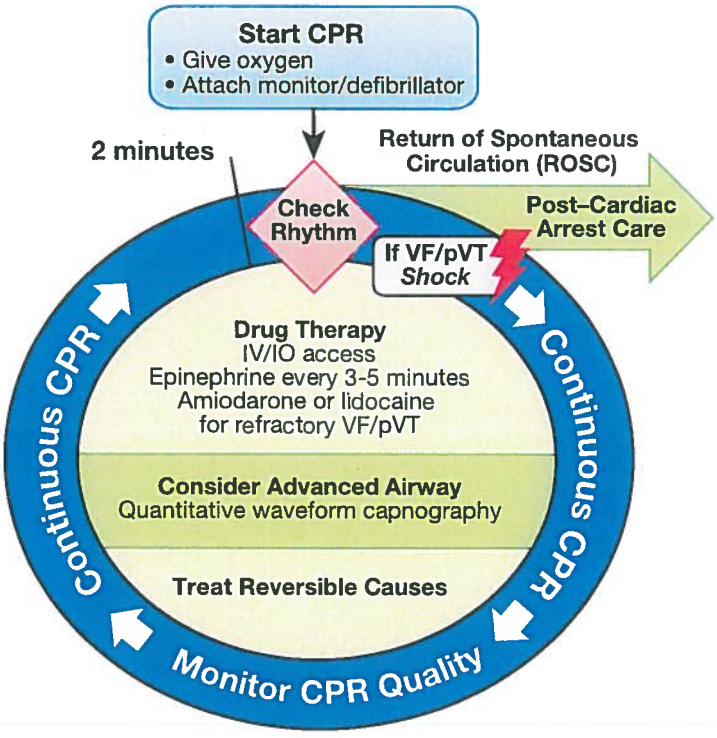
ACLS Cardiac Arrest Algorithm Update

The ACLS Adult Cardiac Arrest Algorithm and the ACLS Adult Cardiac Arrest Circular Algorithm were updated to include lidocaine as an alternative antiarrhythmic to amiodarone for treatment of shock-refractory VF/pVT. The lidocaine dose was added within the algorithm's Drug Therapy box, and a minor edit was made in the CPR Quality box as detailed in the next sections.

Changes to the Adult Cardiac Arrest Algorithm—2018 Update. Within the VF/pVT branch of the algorithm, lidocaine was added as an alternative to amiodarone in Box 8. In the algorithm's CPR Quality box, the fourth bullet text was changed from "Rotate compressor every 2 minutes, or sooner if fatigued" to "Change compressor every 2 minutes, or sooner if fatigued." Within the algorithm's Drug Therapy box, the lidocaine dose was added as an alternative to amiodarone in the second bullet text.

Changes to the Adult Cardiac Arrest Circular Algorithm—2018 Update (Figure 3). Within the circle, under "Drug Therapy," the last drug was changed from "Amiodarone for refractory VF/VT" to "Amiodarone or lidocaine for refractory VF/pVT." Within the algorithm's CPR Quality box, the fourth bullet text was changed from "Rotate compressor every 2 minutes, or sooner if fatigued" to "Change compressor every 2 minutes, or sooner if fatigued." Within the algorithm's Drug Therapy box, the lidocaine dose was added as an alternative to amiodarone in the second bullet text.

Adult Cardiac Arrest Circular Algorithm—2018 Update



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CPR Quality

- Push hard (at least 2 inches [5 cm]) and fast (100-120/min) and allow complete chest recoil.
- Minimize interruptions in compressions.
- Avoid excessive ventilation.
- Change compressor every 2 minutes, or sooner if fatigued.
- If no advanced airway, 30:2 compression-ventilation ratio.
- Quantitative waveform capnography
  - If P_{ETCO_2} <10 mm Hg, attempt to improve CPR quality.
- Intra-arterial pressure
  - If relaxation phase (diastolic) pressure <20 mm Hg, attempt to improve CPR quality.

Shock Energy for Defibrillation

- **Biphasic:** Manufacturer recommendation (eg, initial dose of 120-200 J); if unknown, use maximum available. Second and subsequent doses should be equivalent, and higher doses may be considered.
- **Monophasic:** 360 J

Drug Therapy

- **Epinephrine IV/IO dose:** 1 mg every 3-5 minutes
- **Amiodarone IV/IO dose:** First dose: 300 mg bolus. Second dose: 150 mg.

-OR-

Lidocaine IV/IO dose: First dose: 1-1.5 mg/kg. Second dose: 0.5-0.75 mg/kg.

Advanced Airway

- Endotracheal intubation or supraglottic advanced airway
- Waveform capnography or capnometry to confirm and monitor ET tube placement
- Once advanced airway in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions

Return of Spontaneous Circulation (ROSC)

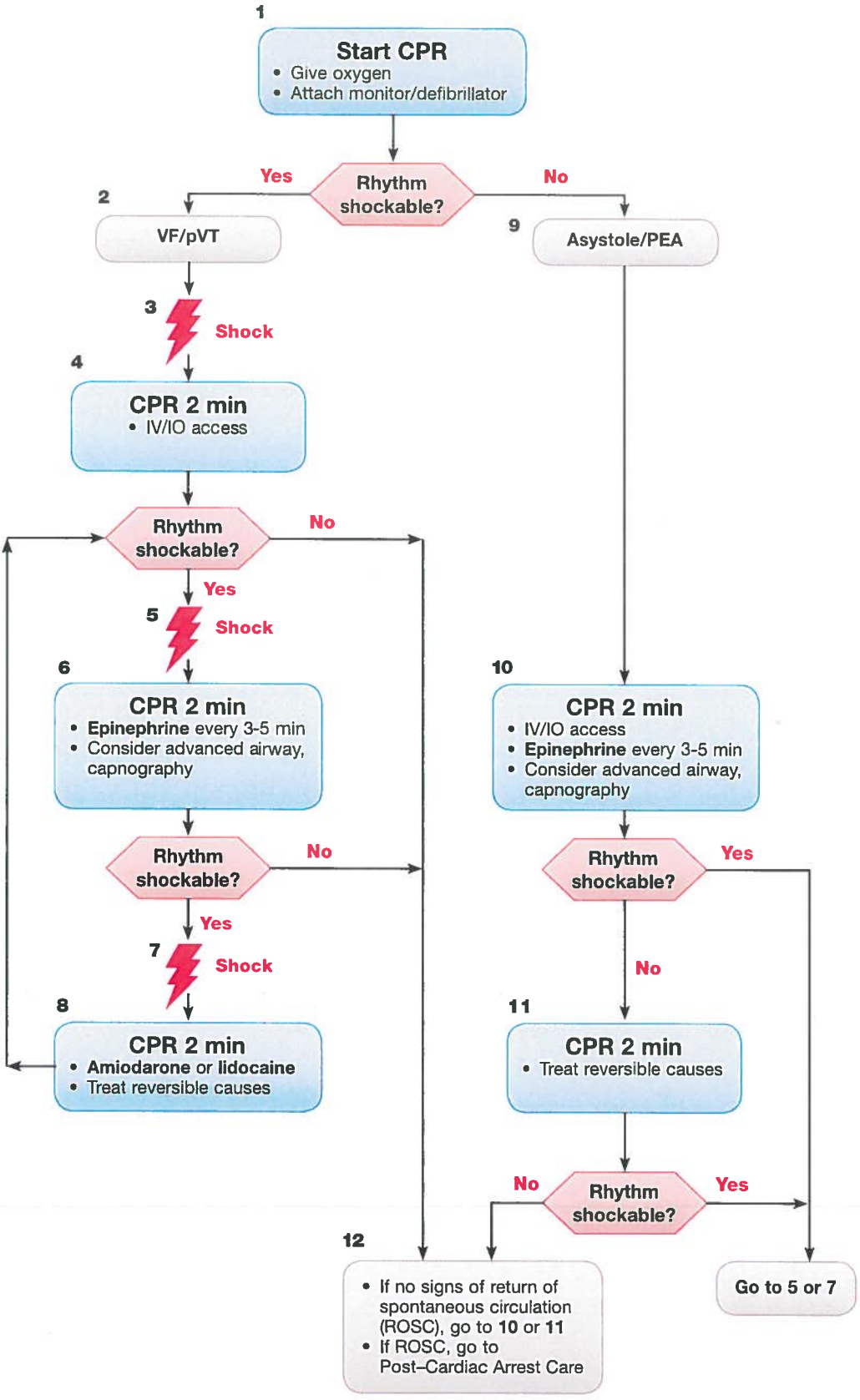
- Pulse and blood pressure
- Abrupt sustained increase in P_{ETCO_2} (typically ≥40 mm Hg)
- Spontaneous arterial pressure waves with intra-arterial monitoring

Reversible Causes

- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen ion (acidosis)
- **H**ypo-/hyperkalemia
- **H**ypothermia
- **T**ension pneumothorax
- **T**amponade, cardiac
- **T**oxins
- **T**hrombosis, pulmonary
- **T**hrombosis, coronary

Figure 3. Adult Cardiac Arrest Circular Algorithm.

Adult Cardiac Arrest Algorithm—2018 Update



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-OR-

Lidocaine IV/IO dose: First dose: 1-1.5 mg/kg. Second dose: 0.5-0.75 mg/kg.

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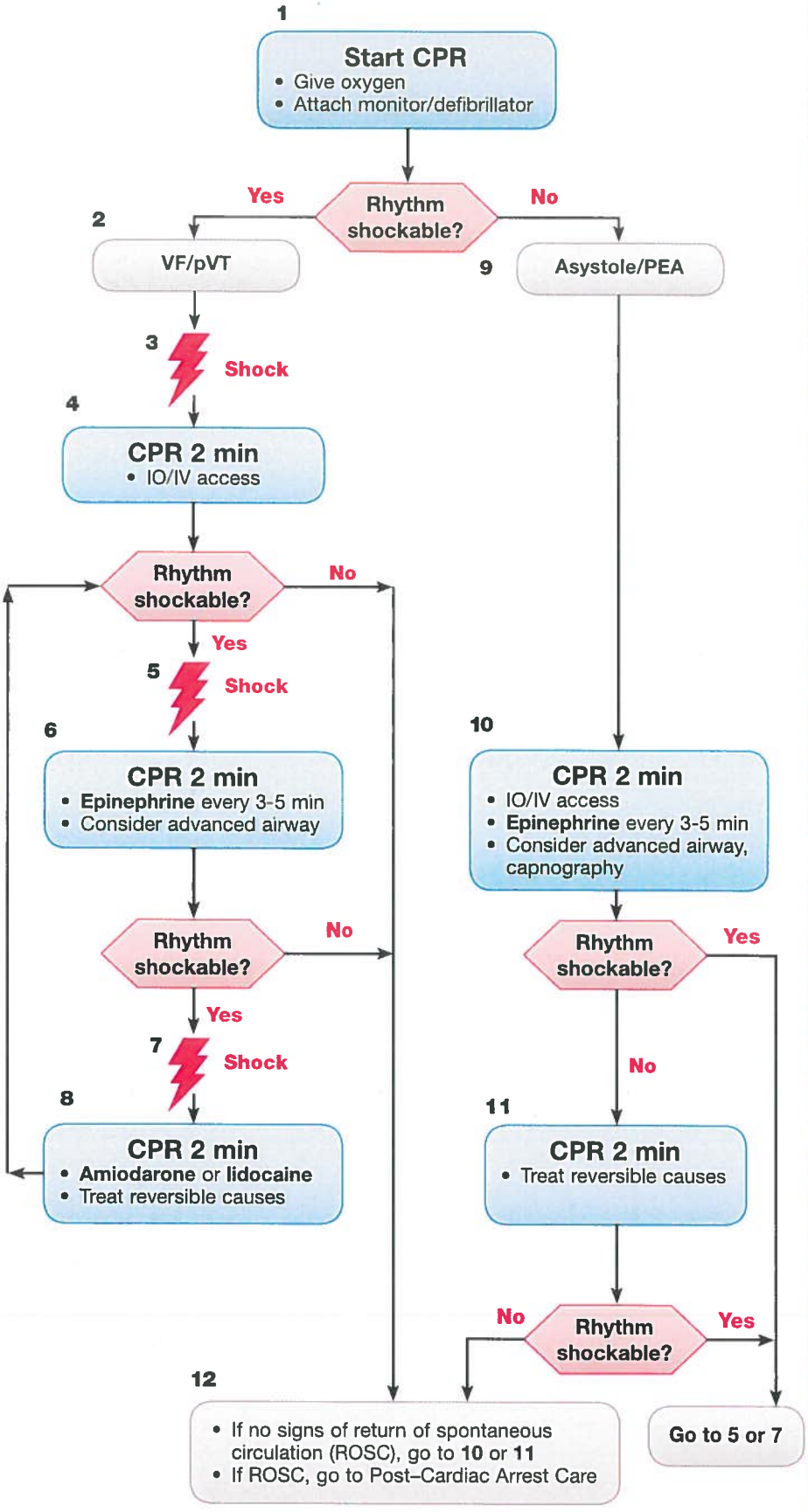
- **H**ydrogen ion (acidosis)
- **H**ypo-/hyperkalemia
- **H**ypothermia
- **T**ension pneumothorax
- **T**amponade, cardiac
- **T**oxins
- **T**hrombosis, pulmonary
- **T**hrombosis, coronary

Figure 2. Adult Cardiac Arrest Algorithm.

Pediatric Cardiac Arrest Algorithm—2018 Update



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CPR Quality

- Push hard (≥⅓ of anteroposterior diameter of chest) and fast (100-120/min) and allow complete chest recoil.
- Minimize interruptions in compressions.
- Avoid excessive ventilation.
- Change compressor every 2 minutes, or sooner if fatigued.
- If no advanced airway, 15:2 compression-ventilation ratio.

Shock Energy for Defibrillation

First shock 2 J/kg, second shock 4 J/kg, subsequent shocks ≥4 J/kg, maximum 10 J/kg or adult dose

Drug Therapy

- **Epinephrine IO/IV dose:** 0.01 mg/kg (0.1 mL/kg of the 0.1 mg/mL concentration). Repeat every 3-5 minutes. If no IO/IV access, may give endotracheal dose: 0.1 mg/kg (0.1 mL/kg of the 1 mg/mL concentration).
- **Amiodarone IO/IV dose:** 5 mg/kg bolus during cardiac arrest. May repeat up to 2 times for refractory VF/pulseless VT.

-OR-

Lidocaine IO/IV dose: Initial: 1 mg/kg loading dose. Maintenance: 20-50 mcg/kg per minute infusion (repeat bolus dose if infusion initiated >15 minutes after initial bolus therapy).

Advanced Airway

- Endotracheal intubation or supraglottic advanced airway
- Waveform capnography or capnometry to confirm and monitor ET tube placement
- Once advanced airway in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions

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Reversible Causes

- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen ion (acidosis)
- **H**ypoglycemia
- **H**ypo-/hyperkalemia
- **H**ypothermia
- **T**ension pneumothorax
- **T**amponade, cardiac
- **T**oxins
- **T**hrombosis, pulmonary
- **T**hrombosis, coronary

Figure 4. Pediatric Cardiac Arrest Algorithm.

Adult Bradycardia With a Pulse Algorithm

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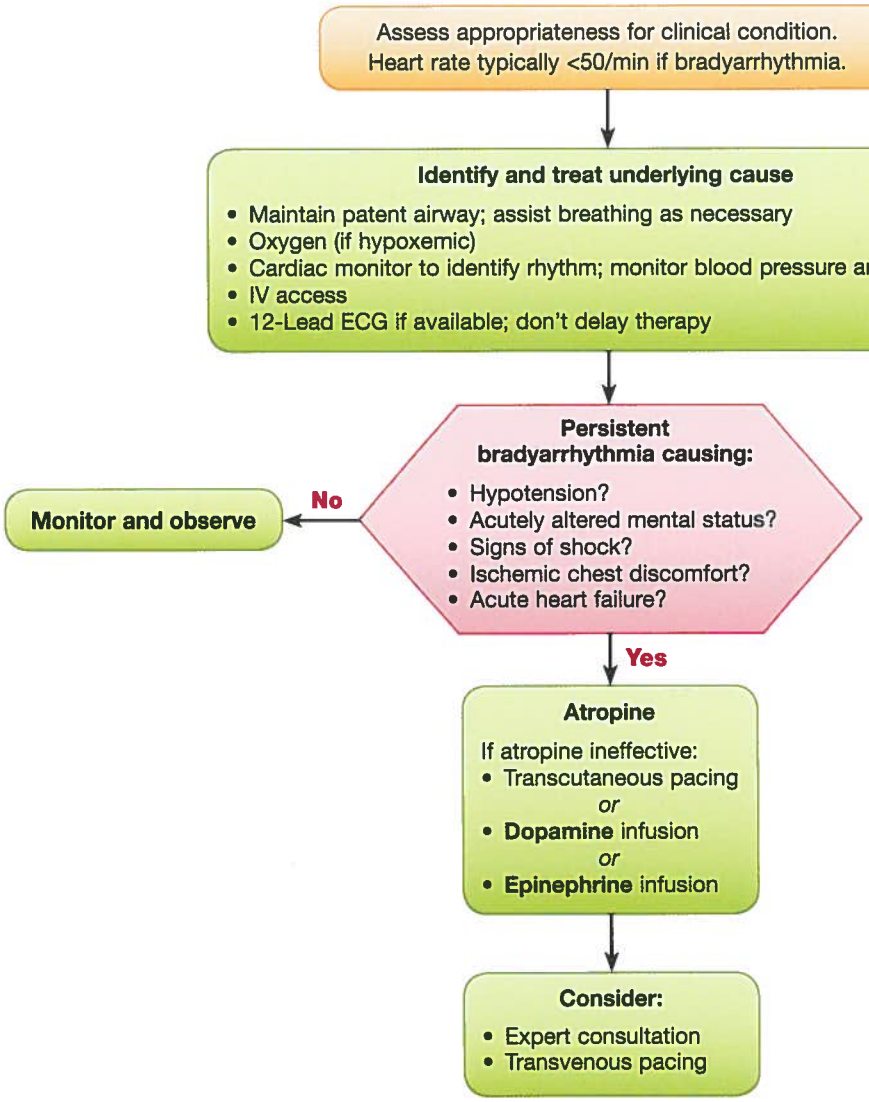

Doses/Details
Atropine IV dose: First dose: 0.5 mg bolus. Repeat every 3-5 minutes. Maximum: 3 mg.
Dopamine IV infusion: Usual infusion rate is 2-20 mcg/kg per minute. Titrate to patient response; taper slowly.
Epinephrine IV infusion: 2-10 mcg per minute infusion. Titrate to patient response.

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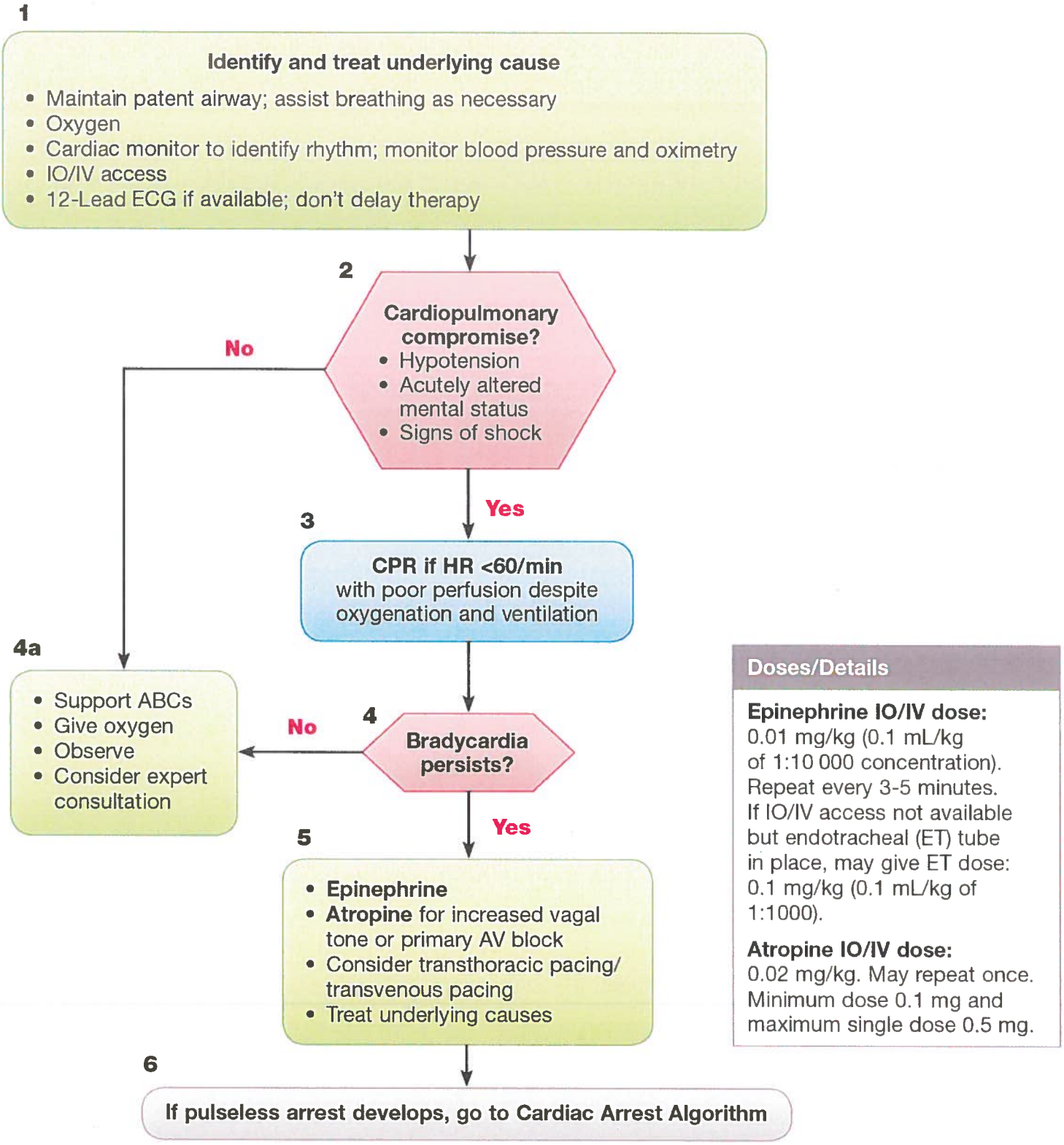
Pediatric Bradycardia With a Pulse and Poor Perfusion Algorithm



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Adult Tachycardia With a Pulse Algorithm

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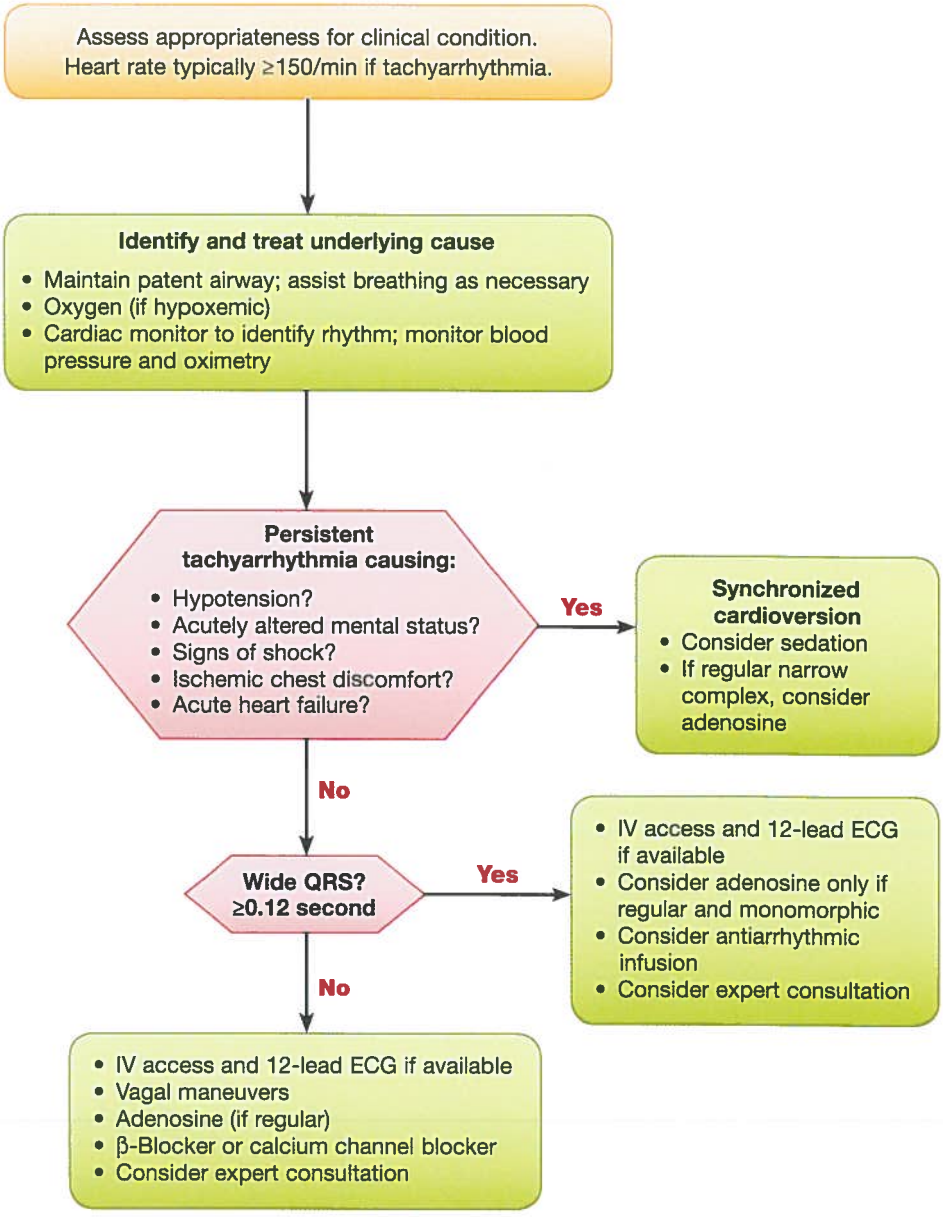

Doses/Details

Synchronized cardioversion:
Initial recommended doses:
- Narrow regular: 50-100 J
- Narrow irregular: 120-200 J biphasic or 200 J monophasic
- Wide regular: 100 J
- Wide irregular: defibrillation dose (*not* synchronized)

Adenosine IV dose:
First dose: 6 mg rapid IV push; follow with NS flush.
Second dose: 12 mg if required.

Antiarrhythmic Infusions for Stable Wide-QRS Tachycardia

Procainamide IV dose:
20-50 mg/min until arrhythmia suppressed, hypotension ensues, QRS duration increases >50%, or maximum dose 17 mg/kg given. Maintenance infusion: 1-4 mg/min. Avoid if prolonged QT or CHF.

Amiodarone IV dose:
First dose: 150 mg over 10 minutes. Repeat as needed if VT recurs.
Follow by maintenance infusion of 1 mg/min for first 6 hours.

Sotalol IV dose:
100 mg (1.5 mg/kg) over 5 minutes. Avoid if prolonged QT.

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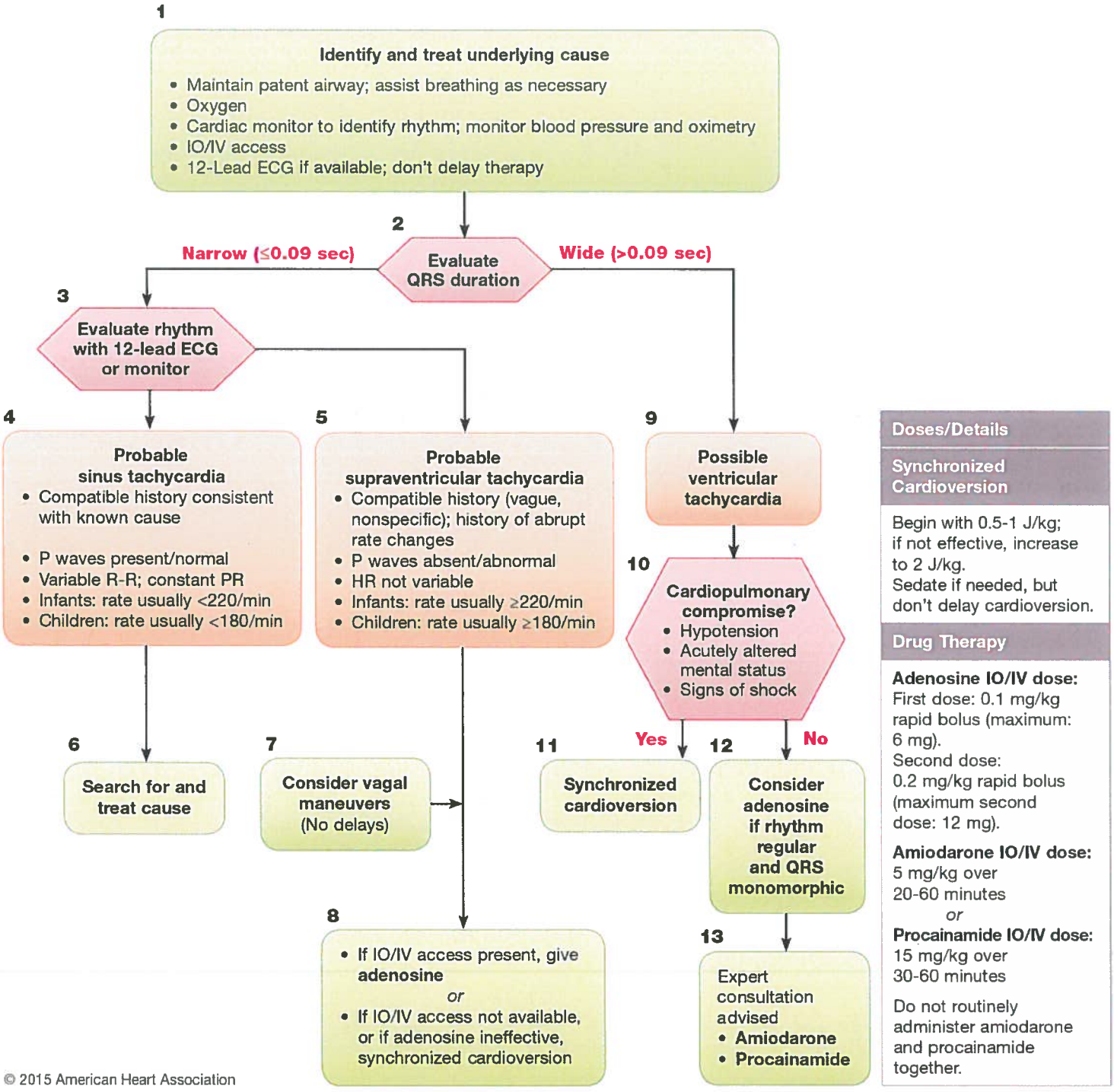
Pediatric Tachycardia With a Pulse and Poor Perfusion Algorithm



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Adult Immediate Post–Cardiac Arrest Care Algorithm—2015 Update

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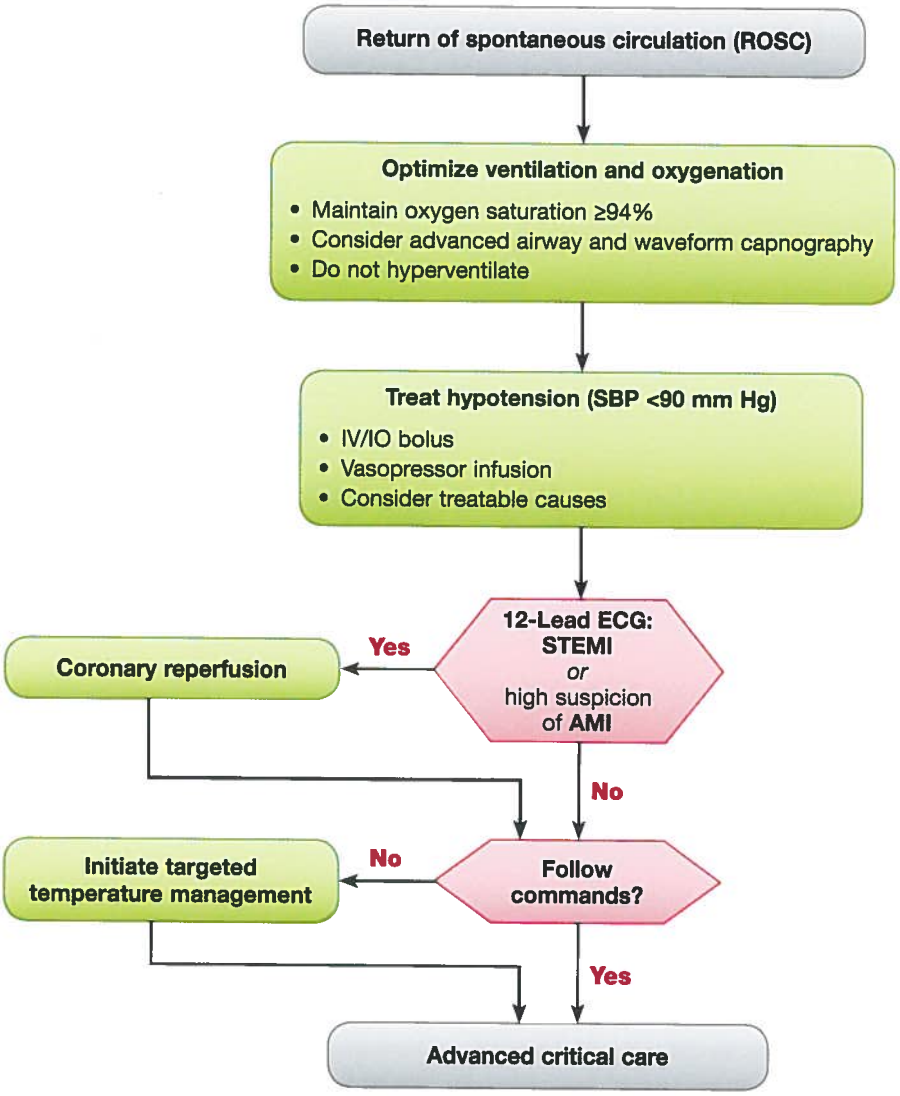

Doses/Details

Ventilation/oxygenation: Avoid excessive ventilation. Start at 10 breaths/min and titrate to target P_{ETCO_2} of 35-40 mm Hg. When feasible, titrate F_{IO_2} to minimum necessary to achieve Sp_{O_2} ≥94%.

IV bolus: Approximately 1-2 L normal saline or lactated Ringer's

Epinephrine IV infusion: 0.1-0.5 mcg/kg per minute (in 70-kg adult: 7-35 mcg per minute)

Dopamine IV infusion: 5-10 mcg/kg per minute

Norepinephrine IV infusion: 0.1-0.5 mcg/kg per minute (in 70-kg adult: 7-35 mcg per minute)

Reversible Causes

- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen ion (acidosis)
- **H**ypo-/hyperkalemia
- **H**ypothermia
- **T**ension pneumothorax
- **T**amponade, cardiac
- **T**oxins
- **T**hrombosis, pulmonary
- **T**hrombosis, coronary

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General – Behavioral/Patient Restraint

Criteria:

1. Patients without the capacity to refuse treatment, who are exhibiting behavior that presents a clear and present danger to themselves, the EMS crew, or others
2. Patients who require management of anxiety and/or sedation prior to a medical procedure such as cardioversion

B

Ensure sufficient number of personnel are present to control the patient while applying restraints. Utilize law enforcement assistance where possible

Inform the patient that you intend to restrain them and why. This should not be used or perceived as a threat or ultimatum to patient

Perform thorough physical assessment sufficient to document findings and injuries present before application of restraints

Utilize soft restraints and/or cravat to prevent the patient from harming themselves and providers

Place patient on stretcher in supine position, apply chest belt high on the chest, apply lower extremity belt, and then apply abdominal/waist strap and shoulder straps. After application of safety belts, ensure the patient can still take full inspiratory breaths. Adjust as needed

Four-point soft restraints shall be applied as to not impair circulation in the extremity. The dominant arm of the patient should be restrained above the patient's head

Circulatory checks distal to the restraints shall be performed immediately after application of four-point restraints and again performed (and documented) every 15 minutes

If the patient has a seizure, CUT/RELEASE THE RESTRAINTS IMMEDIATELY

I

For brief procedural sedation administer **Etomidate** 0.3 mg/kg, for longer procedural sedation and/or anxiety management administer **Midazolam** 0.02 mg/kg, max single dose 5mg. Repeat x1 after 10 minutes if needed

For chemical restraint in lieu of or in addition to physical restraint, administer **Midazolam** 2-5 mg

Consider administration of 25 mg **Diphenhydramine**. *Pediatric dose is 1 mg/kg with a max single dose of 25 mg*

General – Behavioral/Patient Restraint cont'd

P	For chemical restraint in lieu or in addition to physical restraint. Administer 2 mg/kg IM **Ketamine**; repeat x1 after 10 minutes if needed. If appropriate and available, 1-2 mg/kg IV **Ketamine** can be used in lieu of IM, repeat x1 after 5 minutes if needed

Medication Summary:

Benadryl (Diphenhydramine): 25 mg
Etomidate (Amidate): 0.3 mg/kg
Ketamine (Ketalar): 2 mg/kg IM repeat x1 q 10 minutes; 1-2 mg/kg IV
Midazolam (Versed): Procedural Sedation: 0.2 mg/kg (max 5mg); Chemical Restraint: 2-5 mg

Notes:

1. Documentation in patient care report must include evidence of need for restraint, treatment that was necessary and, in the patient's best interest, type and location of restraint(s), injuries that occurred during or after restraint, and every 15-minute circulation checks
2. Restraints, both physical and chemical, should be considered a "last resort". The least-restrictive means to maintain provider and patient safety should be used
3. Do not position or transport any restrained patient prone, or in such a way that could impair the patient's respiratory or circulatory status.
4. Administer sedating agents cautiously in patients where alcohol or other depressant use is suspected
5. Use caution with Versed administration in the elderly

General-Hospice Care

Criteria: Patients under the care of hospice that may require assistance, reassurance, or help with patient's prescribed hospice medication, but not transport.

EVERY EFFORT SHOULD BE MADE TO CONTACT PATIENT'S HOSPICE PROVIDER BEFORE MAKING A TRANSPORT DECISION

B	Administer oxygen for relief of labored breathing
A	Administer patient's hospice medications * as directed on prescription label based on signs and symptoms, making sure to observe the five rights of medication administration

Notes:

1. Patient's experiencing a medical or traumatic emergency not related to their hospice diagnosis should be treated like all other patients
2. Hospice patients may have an altered mental status or be unresponsive, **Naloxone** is only indicated with a respiratory rate less than 6 and the patient is not actively dying.
3. Consider using hospice and/or medical control for questions on patient treatment/transport
4. All patients requesting transport will be transported to the closest appropriate facility
5. * Example home medications include: **Alprazolam** (Xanax), **Clonazepam** (Klonopin), **Diazepam** (Valium), **Haloperidol** (Haldol), **Fentanyl (**Sublimaze**)**, **Lorazepam** (Ativan), and **Morphine**. Providers can administer medications that are within the state scope of practice for their practice level – see Virginia OEMS Scope of Practice Formulary for EMS Providers.

Created 04/27/2020 **Revised:**

General – Indwelling Medical Device/Equipment

Criteria: Patients with ventricular assist devices and other implanted medical equipment

E M R	If patient is unconscious carefully evaluate for reversible causes prior to initiating CPR - chest compressions may cause irreversible damage to devices. PRIOR TO CPR - check reference guide to see if CPR is allowed for patient's particular indwelling medical device Identify and attempt to contact the patient's primary caretaker (spouse, guardian, etc) as well as their VAD coordinator as early as possible
B	Work with the caregiver, patient, and VAD coordinator to determine if the problem is related to the implanted device. If so, attempt to arrange transport to patient's VAD center Ensure to transport all available VAD equipment with the patient (spare batteries, troubleshooting equipment, replacement parts, etc) Utilize end-tidal CO2 to assess quality of ventilation and perfusion. Provide supplemental Oxygen to ensure optimal perfusion
A	If patient is demonstrating signs of hypoperfusion, administer 250 cc bolus of NS q 5 min until improvement is noted

Notes:

1. Patients with properly functioning VAD's may NOT have a detectable pulse, normal blood pressure, or Oxygen Saturation
2. Patients with medical or trauma situations not related to a device malfunction should be treated traditionally. For example, a diabetic who has a VAD and has hypoglycemia is treated traditionally. Also, a VAD patient suffering from a traumatic injury should be treated and transported using standard trauma triage guidelines
3. Please refer to http://mylvad.com/content/ems and see the reference section for a color-coded guide to various devices that are on the market

General – Pain Control

Criteria: Patients with pain resulting from chronic/acute medical or trauma conditions who are experiencing moderate to severe pain

A

If age is <65 and patient has NO history of renal failure, NO suspected active bleeding, and NO need for surgical intervention, consider **Ketorolac** 30 mg (*pediatric dose is 0.5 mg/kg – max dose 30 mg*)

Administer **Fentanyl** 0.5-1 mcg/kg (single dose max is 100 mcg). *Pediatric dosing is the same*. Repeat every 15 minutes as needed provided respiratory effort and blood pressure remains sufficient

P

If Fentanyl is not effective or available, administer **Ketamine** 0.25-0.5 mg/kg. *Pediatric dosing is the same*. Repeat once after 10 minutes if needed

Medication Summary:

Fentanyl (Sublimaze): 0.5-1.0 mcg/kg (single dose max 100 mcg)
Ketamine (Ketalar): 0.25-0.5 mg/kg; Repeat x1 q 10 if needed
Ketorolac (Toradol): 30 mg (*Pediatric Dose 0.5 mg/kg max dose 30 mg*)

Notes:

1. If greater than 300 mcg of Fentanyl is necessary to manage the patient's condition, contact medical control for additional orders
2. DO NOT use Ketorolac in patients who meet trauma triage criteria to be seen at a trauma center
3. DO NOT use Ketorolac in patients with suspected intracranial hemorrhage
4. Ketorolac is only for patients > 2 years of age
5. Consider lower dosing for parenteral analgesic in geriatric patients
6. Should monitor GCS and use pain scale to monitor efficacy

Heat Emergencies

Criteria: Should be used for any patient with a heat related emergency with core temperature greater than 100.4

B	Assess for and treat hypoglycemia **Temperature 100.4-104F:** Remove clothing, use passive cooling **Temperature >104F:** Remove clothing, use active cooling measures (iced sheets, topical application of chilled water, ice packs at neck/groin/armpits, etc.)
A	**Temperature 100.4-103.9F:** Bolus 1 L Normal Saline. **Temperature >104F:** Bolus chilled NS, not to exceed 1 L

Notes:
1. If patient has altered mental status, transport emergently regardless of temperature.
2. Only cool patient to 102˚
3. Preferred way to take patient's temperature is rectally and should be monitored throughout treatment

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Medical – Allergic Reaction/Anaphylaxis

Criteria: Any patient who is having an adverse reaction to a foreign substance.

B	If the patient has a history of allergic reaction and is currently experiencing symptoms of anaphylaxis, administer Epinephrine utilizing the color-coded syringe or a kit approved by the agency's OMD
A	For dystonic reaction, administer **Diphenhydramine** 25 mg *MINOR allergic reaction*, administer **Diphenhydramine** 25-50 mg (*pediatric dose 1 mg/kg – max dose 50 mg*) *SEVERE allergic reaction*, administer **Epinephrine** (1:1000) 0.3 mg IM (*pediatric dose 0.01 mg/kg – max dose 0.3 mg*), in addition to **Diphenhydramine**. If patient is deteriorating rapidly, consider administering 1:10,000 **Epinephrine** 0.3 mg IV instead. If the reaction has systemic involvement or is severe, administer **Methylprednisolone** 125 mg (*Pediatric dose 2 mg/kg up to max dose of 125 mg*)
I	If the patient is altered and SBP less than 90mmHg, use push pressor **Epinephrine 5-20 mcg.** If **Epinephrine** is not available administer **Dopamine infusion 5-20 mcg/kg/min** to maintain SBP greater than 90 mmHg or MAP > 60.

Medication Summary

Diphenhydramine (Benadryl): 25-50 mg Minor Allergic Reaction; 25 mg Dystonic Reaction
Dopamine: 2-20 mcg/kg/min
Epinephrine: 1:1,000 0.3 mg IM; (add max dose – peds) *Pediatric Dose: 0.01mg/kg;*
Severe allergic reaction: 1:10,000 0.3 mg IV. 1:100,000 5-20 mcg push pressor
Methylprednisolone (Solu-Medrol): 125 mg; *(Pediatric dose 2 mg/kg up to max of 125 mg)*

Notes:

1. ALS should be utilized whenever possible for all severe and most moderate reactions.
2. If the substance causing the reaction is still present, minimize contact with patient and attempt to isolate the substance.
3. If pediatric patient has a PMH of anaphylaxis and is exhibiting signs and symptoms of allergic reaction, do not wait for progression to severe allergic reaction before administering Epinephrine.
4. **To mix the Epinephrine push pressor – mix 1ml 1:10,000 Epinephrine in 9ml of Normal Saline to provide 10 mcg/ml.**

Created: 05/20/2009 **Revised 04/27/2020**

Medical – Altered Mental Status

Criteria:

1. Patients that are unresponsive or a GCS < 15
2. Thorough attempts should be made to determine the cause of the altered LOC, and specific management should be made based on the cause

B	If BGL < 60 and patient is able to swallow effectively administer oral glucose If patient is unable to swallow, administer 1mg **Glucagon** IM/SQ
A	Titrate IV fluid to achieve SBP at or above 90 mmHg and administer 20 cc/kg if < 90 If BGL < 60 administer 100cc of **Dextrose 10%** - Repeat after 2 minutes if symptoms are not resolved - Pediatric dose for **Dextrose 10%** is 5 cc/kg IV and Neonatal (< 30 days) is 2 cc/kg If unable to achieve IV access, administer 1 mg **Glucagon** IM/SQ If BGL > 500 or "high" administer 20 cc/kg IV NS to maximum of 2 liters

Medication Summary:

Dextrose 10%: 100 cc *(Pediatric dose – 5cc/kg IV; Neonatal dose 2cc/kg)*
Glucagon (Glucagen): 1mg IM/SQ

Notes:

1. Possible causes of unconsciousness: A E I O U T I P S - Acidosis/alcohol, Epilepsy/Ethylene glycol, Infection, Overdose, Uremia (Renal Failure), Trauma/tumor, Insulin, Psychosis, and Stroke
2. Administration of medications by BLS providers must be in a color-coded and/or dose-limiting device

Medical- Chest Pain - Cardiac Suspected

Criteria: Patients with chest pain can have a variety of conditions - some of which are life-threatening. Determination should be made as to the root cause of the problem with special attention on early recognition and proper treatment of life-threatening conditions

B	Perform 12-lead EKG immediately. If machine interpretation includes "acute", "acute MI", or "infarct" statement, begin urgent transport to facility capable of PCI. If possible, transmit EKG to receiving facility. **Do not delay care on the scene for interventions**. An early report should be given. State "**Code STEMI**" at beginning of report If the patient has not taken > 160 mg of Aspirin in the preceding four hours, administer four (4) **81 mg chewable Aspirin** from the STAT Kit If the patient is currently having pain, has not taken three (3) or more tablets, administer 0.4 mg of SL **Nitroglycerin** tablets/spray (patient's or STAT kit supplied). Administer additional doses (q 5 minutes) up to two (2) tablets or 0.8 mg
A	Establish IV; administer 20 cc/kg bolus of Normal Saline if the patient is hypotensive (SBP < 90 mmHg or MAP < 60)
I	If patient's pain is >5 on pain scale administer **Fentanyl** 0.5-1.0 mcg/kg (max single dose is 100 mcg) IV q15 minutes until patient is pain free If systolic BP is <90 mmHg (unrelated to analgesia) begin **Epinephrine push pressor** 5-20 mcg 1:100,000 q 2-5 minutes or **Epinephrine** infusion (2-10 mcg/min) to maintain BP. If patient does not respond to **Epinephrine**, begin **Dopamine** drip (2-20 mcg/kg/min) and

Medication Summary

Aspirin (Disprin): 81 mg x4 (do not exceed 324 mg concurrent to patient's intake)
Dopamine (Intropin): 2-20 mcg/kg/min;
Epinephrine: 2-10 mcg/min
Fentanyl (Sublimaze): 0.5-1.0 mcg/kg (max single dose 100 mcg)
Nitroglycerin (Nitrostat): 0.4 mg SL, spray, or 1-Inch Paste TD

Notes:
1. Chest pain should always be considered caused by life-threatening conditions until proven otherwise. If transport to cardiac catheterization facility is > 45 minutes consider alternate means of transport or possibility of transport to closer facility that can provide initial stabilization and then transfer
2. BLS providers must be trained on equipment/acquisition of 12 lead in order to perform as standing order
3. Avoid precipitous drop of BP greater than 10% (30% if relatively hypertensive) through the administration of NTG
4. In the setting of an AMI, PVC's may be resulting from cardiac ischemia. Treat the chest pain not the PVC's.
5. If 12 lead EKG shows right-sided infarct, NTG is not recommended and crystalloid fluid may be necessary to support BP
6. **To mix the Epinephrine push pressor – mix 1ml 1:10,000 Epinephrine in 9ml of Normal Saline to provide 10 mcg/ml**

Created: 05/20/2009 **Revised 08/27/2020**

Medical- Hypotension/Shock Non-Trauma

Criteria: Patients that are symptomatic and have systolic blood pressure of < 90 mmHg

B	Administer 4mg ODT **Ondansetron** to treat and prevent vomiting
A	Administer 20 cc/kg bolus of Normal Saline. Titrate IV fluid to achieve a systolic BP > 90 mmHG up to 2 L Administer **Ondansetron** 4 mg (*pediatric dose is 2 mg*) to treat or provide prophylaxis against nausea. May repeat x1 after 5 minutes if needed
I	If patient remains hypotensive with signs of hypoperfusion after NS, administer **Epinephrine push pressor** 5-20 mcg 1:100,000 q 2-5 minutes or **Epinephrine** infusion (2-10 mcg/min), or begin **Dopamine** infusion 5-20 mcg/kg/min. Titrate for SBP at or above 90 mm Hg or MAP > 60.

Medication Summary:

Dopamine (Intropin): 5-20 mcg/kg/min
Epinephrine: 1:100,000 5-20 mcg push pressor
Ondansetron (Zofran): 4 mg IV (*pediatric dose 2 mg)*

Notes:

1. Whenever administering IV fluid bolus, especially in patients with existing cardiac disease, monitor closely for sign of pulmonary edema. If patient develops SOB or rales, stop fluid bolus and move to vasopressor therapy
2. Volume deficit from vomiting, diarrhea, or other forms of infection should be treated aggressively with isotonic boluses prior to beginning vasopressor and require a medium or large bore peripheral line

2. All patients with unstable VS should be monitored by EKG and pulse oximetry. Whenever possible also evaluate capnography
3. **To mix the Epinephrine push pressor – mix 1ml 1:10,000 Epinephrine in 9ml of Normal Saline to provide 10 mcg/ml**
4. Avoid creating hypertension

Created: 05/20/2009 **Revised 08/27/2020**

Medical – Nausea/Vomiting

Criteria: Patients with nausea and/or vomiting

B	Administer 4 mg ODT **Ondansetron**
A	Establish IV access based on patient presentation. Administer 20 cc/kg bolus of Normal Saline. Titrate IV fluid to achieve a systolic BP > 90 mmHg up to 2 Liters. Administer 4 mg IV **Ondansetron** (*pediatric dose is 2 mg*) to treat or provide prophylaxis against nausea. May repeat x1 after 5 min if needed.

Medication Summary:

Ondansetron (Zofran): 4 mg ODT ; 4 mg IV *(Pediatric dose – 2 mg)*

Medical-Overdose/Poisoning/Toxic Ingestion

Criteria: Patients with intentional or accidental exposure to medications and substances that affect various body systems

B	If the suspected overdose/poisoning is an opioid AND the patient is unconscious and has insufficient respiratory effort, administer 1 pre-filled syringe of **Naloxone** IN/IM from the STAT kit
A	Administer 20 cc/kg bolus of Normal Saline. Titrate IV fluid, up to 2 L, to achieve a systolic BP > 90 mmHg or MAP > 60 If the suspected overdose/poisoning is an opioid AND there is significant respiratory depression administer **Naloxone** beginning at 0.5 mg, IV/IM/IO/IN/Neb every 2-5 min titrating repeat doses for effective respiratory function. Pediatric dose for **Naloxone** is 0.1 mg/kg to maximum dose of 2 mg, titrated for effective respiratory function Contact poison control (1-888-222-1222) for assistance when with other substances

Medication Summary:

Naloxone (Narcan): Adult: 0.5 mg IV/IM/IO/IN/Neb every 2-5 minutes (*pediatric: 0.1 mg/kg up to 2mg*)

Notes:
1. Always consider the fact that multiple substances may be involved and symptoms from conflicting substances may be masked. Whenever possible, gather the substance and transport with the patient for evaluation at the receiving facility
2. Treatment is generally supportive. Induction of emesis is rarely appropriate
3. Some drugs and substances have specific antidotes, it is important to accurately and quickly recognize the substance(s) that are involved.
4. BLS providers may access/use Narcan from the STAT kit, medication box, or other approved pharmacy source per department policy and procedures

Created 05/20/2009 **Revised 09/11/2018**

RAPPAHANNOCK EMS COUNCIL INC.

RAPPAHANNOCK REGIONAL EMS COUNCIL
PATIENT CARE PROTOCOLS

Medical - Respiratory Distress/Asthma/COPD/Croup/Reactive Airway

Criteria: Includes any patient who is having difficulty breathing or disordered breathing related to an acute or chronic process

B	If patient has a rescue inhaler, administer one dose if they have not already had two doses in the last 30 minutes. Consider CPAP for distress NOT related to allergic reaction If the patient is in moderate to severe respiratory distress, administer a nebulizer of **Albuterol** 2.5 mg and **Ipratropium Bromide** 0.5 mg from the STAT kit together
A	Repeat 2.5mg of **Albuterol** as needed (online medical control required for > 7.5 mg). **Albuterol** pediatric dose the same if > 2 years of age; < 2 years of age administer 1.25 mg diluted with 2 cc NS Administer **Methylprednisolone** 125 mg IV if no relief or improvement from first dose of Albuterol (*pediatric dose 2 mg/kg IV, maximum dose 125 mg*) For a severe asthma attack with deteriorating patient condition administer **Epinephrine** 1:1,000 0.3 mg IM (pediatric 0.01 mg/kg; max dose 0.3 mg)
I	For CHF or pulmonary edema: apply one inch of **Nitroglycerin** paste Consider 0.5 mg/kg IV **Furosemide** if patient does not take already. If patient is prescribed Lasix, consider 1.0 mg/kg (max single dose of 40 mg)
P	For Asthma: if no response to Albuterol consider **Magnesium Sulfate** 50 mg/kg IV (*pediatric dose 50 mg/kg – max dose 2 g*). Can repeat 30 mg/kg x1 q10 minutes. Do not exceed 2.5 g total
CCP/ AP	For croup, ARDS, and/or status asthmaticus administer 3 ml **Epinephrine** 1:10,000 by nebulizer (*pediatric dose the same*)

Medication Summary:

Albuterol (Ventolin): 2.5 mg if >2 years old; if <2 years old, administer 1.25 mg diluted with 2 cc NS
Epinephrine 1:1,000: Adult- 0.3 mg IM, *Pediatric- 0.01 mg/kg to a maximum of 0.3 mg*
Epinephrine - Racemic: administer 3 ml Epinephrine 1:10,000 by nebulizer *(adult and pediatric the same)*
Furosemide (Lasix): 0.5 mg/kg IV if patient does not take as home med; if they do, consider 1.0 mg/kg IV (max single dose 40 mg)
Ipratropium Bromide (Atrovent): 0.5 mg (*adult and pediatric the same*)
Magnesium Sulfate: 50 mg/kg IV, repeat in 10 minutes at 30 mg/kg but do not exceed 2.5 g total *(adult and pediatric the same)*
Methylprednisolone (Solu-Medrol): Adult- 125 mg, *pediatric: 2 mg/kg, max of 125 mg*
Nitroglycerin (Nitrostat): 0.4 mg SL, or one inch of paste TD

Notes:
1. Perform detailed assessment and gather appropriate PMH to determine suspected cause of dyspnea
2. Epinephrine is a potent inotrope and chronotrope and should be used with extreme caution in patients greater than 60 years of age, pre-existing cardiomyopathy, and those with a heart rate > 120
3. Contact Medical Control for total administration greater than 7.5 mg Albuterol

Created 05/20/2009 **Revised 04/20/2020**

Medical-Seizure

Criteria: Patients who are having seizures

B	If respirations are <8, assist with BVM ventilations If it's an adult patient who is hypoglycemic, administer 1 mg **Glucagon** IM
A	If patient is hypoglycemic, administer 100 cc **Dextrose 10%** (*pediatric dose is 5 cc/kg*). Repeat after 2 minutes if symptoms are not resolved For active seizure administer **Midazolam** 2-5 mg repeat every 5 minutes (*pediatric dose is 0.1 mg/kg up to max single dose of 2 mg*) - may repeat once after 5 minutes

Medication Summary:

Dextrose 10%: 100 cc, repeat after 2 min if necessary (*pediatric dose is 5 cc/kg, and neonatal is 2 cc/kg*)
Glucagon (Glucagen): 1 mg IM
Midazolam (Versed): 2-5 mg, repeat after 5 min (*pediatric dose: 0.1 mg/kg max of 2 mg*)

Notes:
1. Versed may cause respiratory depression - monitor respiratory effort closely after administration, provide Oxygen, monitor and protect airway

OB/GYN- Eclampsia

Criteria: Pre-eclampsia includes symptoms of peripheral edema, hypertension, and visual changes or disturbances. Eclampsia is any pregnant patient (in second or third trimester) who is having seizure activity

B	Check blood sugar
A	For active seizure, administer 2 mg IV/IN **Midazolam**. May repeat x1 after 5 minutes if necessary
I	***ONLINE MEDICAL CONTROL:*** Obtain approval then administer **Magnesium Sulfate** 2-4 g IV/IO over 20 minutes per online medical control
P	Administer **Magnesium Sulfate** 2-4 g IV/IO infusion over 20 minutes for eclamptic patients

Medication Summary:

Magnesium Sulfate: 2-4 g IV/IO over 20 minutes
Midazolam (Versed): 2-5 mg IV/IN, repeat after 5 min

Notes:
1. When transporting a pregnant patient, transport in the left lateral recumbent position to avoid supine hypotension
2. If patient is distinctly pre-eclamptic with symptoms of a headache, EMT-I and EMT-P providers may contact online medical control to request **Magnesium Sulfate** as a preventative measure
3. **Calcium chloride/gluconate** should be available as an antidote for signs of magnesium toxicity (flushed skin, diaphoresis, hypotension, flaccid paralysis, hypothermia, respiratory depression/paralysis, cardiac and CNS depression)
4. Stopping the seizure takes priority over magnesium administration

PRE-HOSPITAL PATIENT CARE PROTOCOL

TRAUMA PROTOCOLS

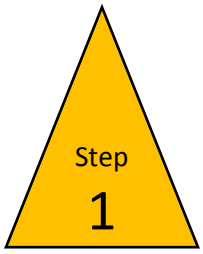
Section III

Rappahannock EMS Council
435 Hunter Street
Fredericksburg, VA 22401

BASIC LIFE SUPPORT/ADVANCED LIFE SUPPORT
ADMINISTRATIVE PATIENT CARE PROTOCOL

BOARD APPROVED OCTOBER 2017

Rappahannock EMS Council
Regional Field Trauma Triage Decision Scheme



Measure vital signs and level of consciousness

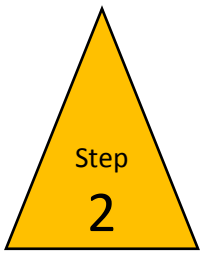
Glasgow Coma Scale	< 14 or
Systolic blood pressure	< 90 or
Respiratory Rate	< 10 or >29 (<20 in infant < one year)

YES

Take to trauma center. Steps 1 and 2 attempt to identify the most seriously injured patients. These patients should be transported preferentially to a Level I or Level II Trauma Center.

NO

Assess the patient's injuries. Do they have:



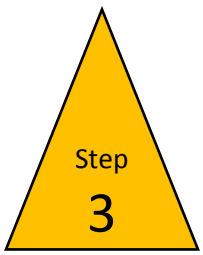
- Penetrating injuries to head, neck, torso, and extremities proximal to elbow and knee.
- Flail Chest
- Two or more proximal long-bone fractures
- Crushed, degloved, or mangled extremity
- Amputation proximal to wrist and ankle
- Pelvic fractures
- Open or depressed skull fracture
- Paralysis

YES

Take to trauma center. Steps 1 and 2 attempt to identify the most seriously injured patients. These patients should be transported preferentially to a Level I or Level II Trauma Center.

NO

Assess mechanism of injury and evidence of high-energy impact. Is injury a result of:



AUTO V. PEDESTRIAN/BICYCLIST THROWN, RUN OVER, OR WITH SIGNIFICANT (>20 MPH) IMPACT

FALLS:
- Older adults (55 and over): >20 ft. (one story is equal to 10 ft.)
- Children: >10 ft. or 2-3 times the height of the child

HIGH-RISK AUTO CRASH:
- Intrusion: >12 in. occupant site; >18 in. in any site
- Ejection (partial or complete) from automobile
- Death in same passenger compartment
- Vehicle automatic crash notification data consistent with high risk injury

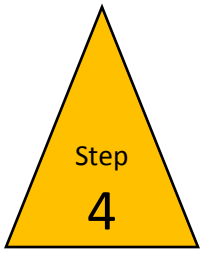
MOTORCYCLE CRASH >20 MPH

YES

Transport to closest appropriate hospital. Preferentially a Level I, II, or III Trauma Center.

NO

Assess special patient or system considerations.



AGE: Older Adults (above age 55)
Children should be triaged preferentially to a pediatric-capable trauma center.

ANTICOAGULATION AND BLEEDING DISORDERS

BURNS: Without other trauma mechanism: Triage to burn facility
With trauma mechanism: Triage to trauma center

TIME SENSITIVE EXTREMITY INJURY

END-STAGE RENAL DISEASE REQUIRING DIALYSIS

EMS PROVIDER JUDGMENT

YES

Contact medical control and consider transport to a trauma center or specialty care hospital.

NO

Transport according to normal operational procedures.

NOTE: Pre-hospital providers should transport trauma patients with uncontrolled airway, uncontrolled hemorrhage, or if CPR is in progress to the closest emergency department for stabilization and transfer to a Trauma Center.

Traumatic Cardiac Arrest

Criteria: All viable patients in cardiac arrest secondary to blunt and or/penetrating trauma

B	Termination of CPR is recommended if no signs of life after 10 minutes of high quality BLS resuscitation. Obtain a Code Gray
A	Administer fluid 2 liters NS rapid bolus If severe hemorrhage is suspected cause of cardiac arrest administer 1 g **Tranexamic Acid** over 10 minutes
I	Identify and correct reversible causes of cardiac arrest before starting ACLS/PALS Perform bilateral lateral needle thoracostomy; repeat as needed If hypoxia is suspected consider placing endotracheal tube during CPR. Do NOT stop compressions or stop resuscitation to place endotracheal tube
CCP/ AP	Perform pericardiocentesis

Medication Summary

Tranexamic Acid (Cyklokapron): 1 g over 10 minutes

Notes:

1. Non-viable patients include those who have injuries not compatible with life (i.e. decapitation, body mutilation, massive open head trauma)
2. Defer backboard usage until after ROSC but consider stabilizing fractured pelvis
3. After ROSC, transport patient immediately per trauma triage guidelines

Created: 11/16/2016 **Revised: 4/20/2020**

Injury – Bleeding/Hemorrhage Control

Criteria:
1. Patients with uncontrolled or profuse bleeding resulting from trauma
2. Patients in traumatic cardiac arrest who recently had vital signs

B

Apply direct pressure

- If bleeding is uncontrolled, expose the wound and remove standing clots and dressing
- Using a gloved hand, apply direct pressure to the specific bleeding source for 3-5 minutes
- Once bleeding is controlled, pack the wound with sterile gauze
- If the bleeding continues after 3-5 minutes of focused direct pressure on the bleeding source, or if there are too many bleeding sources, pack the wound with hemostatic gauze
- If bleeding is profuse, or if there is a partial or complete amputation. Apply tourniquet if anatomically appropriate

A

For patients greater than 11 years of age with sustained tachycardia and hypotension (hemorrhagic shock) related to profuse hemorrhage, who have suffered an injury within the previous three (3) hours, administer **Tranexamic Acid** 1 g over 10 minutes

Notes:
1. Providers are encouraged to follow current TECC guidelines for the management of injuries

Medication Summary:

Tranexamic Acid (Cyklokapron): 1 g over 10 minutes

Injury - Burns

Criteria: Patients with chemical, electrical, thermal, and/or radiation burns

EMR	Safely remove patient from source. Stop the burning process Watch for and PREVENT hypothermia
A	Administer NS IV 500 cc/hr (*for children age 6-13, 250 cc/hr, age <6, 125 cc/hr*) Administer **Fentanyl** 1-2 mcg/kg – may repeat once after 5-10 minutes (*pediatric dose 1-3 mcg/kg, max single dose of 100 mcg*)

Medication Summary:

Fentanyl (Sublimaze): 1-2 mcg/kg, repeat once after 5-10 mins *(Pediatric dose: 1-3 mcg/kg max 100 mcg)*

Notes:

1. Patients with isolated burns to critical areas (head/face/airway, hands/feet, genitalia, or with circumferential burns or TBSA that meets criteria for treatment in a burn center should be transported directly to the burn center whenever possible
2. Patients with multiple trauma AND burns are considered trauma patients and should be transported to the closest appropriate trauma center
3. Ensure scene safety and contact additional resources for scenes involving hazardous materials, dangerous chemicals, or radiation exposures
4. Remember to use DRY sterile dressings as bandages in order to prevent hypothermia
5. If greater than 300 mcg of Fentanyl is necessary to manage the patient's condition, contact medical control for additional orders

RAPPAHANNOCK REGIONAL EMS COUNCIL
PATIENT CARE PROTOCOLS

Injury – Head (Traumatic Brain Injury)

Criteria: Patients that have suffered blunt or penetrating ISOLATED head trauma and as a result are unresponsive or presenting with a GCS at or <12

B	Maintain neutral position of head, elevate head of bed or LBB 20 degrees. **Avoid hyperventilation**. Ventilate patients at a rate to achieve ETCO2 at 40 mmHg
A	Administer 20 cc/kg NS (max dose 1 L). Titrate NS to achieve SBP at or above 100 mmHg (MAP > 65) With signs of herniation*, hyperventilate the patient to achieve ETCO2 of 35 mmHg
I	Administer 5-20 mcg **Epinephrine** q 3-5 minutes as push pressor. Titrate for MAP > 65
CCP/ AP	If patient has TBI with GCS < 9 and/or patient is not able to maintain a secure airway, refer to RSI/DSI Airway management

Medication Summary:

Epinephrine: 5-20 mcg push pressor – may repeat q 3-5 minutes to maintain MAP > 65

Notes:

1. In order to be eligible to intubate, CCP/AP providers must have had one successful intubation in the preceding six months and/or have completed OMD-approved agency training on airway management in the preceding 12 months; documentation to be maintained at the agency and/or council
2. Patients with significant blunt trauma should be assumed to have a spinal injury until proven otherwise by X-Ray and should be fully immobilized
3. Goals are to minimize ICP increase and to promote cerebral perfusion through the maintenance of sufficient circulation and oxygenation
4. Recommend the use of GCS to monitor and trend patient improvement or deterioration. Providers are encouraged to review the Excellence in Prehospital Injury (EPIC) and other evidence-based practice guidelines
5. **To mix Epinephrine push pressor – mix 1 ml 1:10,000 in 9ml of Normal Saline to provide 10 mcg/ml**
6. * Herniation = blown or unequal pupils, GCS 3, and/or posturing

Created: 05/20/2009 **Revised: 05/08/2019**

Injury – Multisystem

Criteria: Patients who require complex or extended extrication and who will benefit from anxiolysis or significant pain management in order to accommodate the extrication or patient manipulation required for disentanglement; patients with prolonged immobility at risk for crush syndrome

I	**ANXIETY MANAGEMENT/SEDATION** Administer **Midazolam** 2-5 mg (*pediatric dose 0.1 mg/kg, max dose 2 mg*). If no response, or not available, administer **Fentanyl** 2 mcg/kg every 15 minutes (*pediatric dose is the same, max dose 100 mcg)*
CCP / AP	**CHEMICAL EXTRICATION AND/OR CRUSH SYNDROME** Administer **Fentanyl** 1-1.5 mcg/kg IV *(pediatric dose is the same, max dose 50 mcg)* and **Ketamine** 0.5-1 mg/kg IV or 1-2 mg/kg IM (*pediatric dose the same, max dose 50 mg IV or 100 mg IM*). Closely monitor for respiratory depression In cases where an adult has concurrent crush injury and extrication time may be prolonged, CONSIDER 100 mEq **Sodium Bicarbonate** in 1000 cc NS and infuse at 100-150 cc/hour If EKG indicates moderate to severe hyperkalemia, administer 100 mEq **Sodium Bicarbonate** and 1g **Calcium** (do not comingle/mix Bicarb and Calcium) and administer 10-20 mg nebulized **Albuterol** over 15-20 minutes. If hyperkalemia persists, patient remains pinned for extended period, and time permits, consider requesting insulin from nearest facility. Contact medical control for orders for insulin and Dextrose

Medication Summary:

Albuterol (Ventolin): 10-20 mg
Calcium (Calcium Chloride): 1 g
Fentanyl (Sublimaze): Anxiety: 2 mcg/kg (*pediatric max dose 100 mcg*); Chemical Extrication 1.0-1.5 mcg/kg (*pediatrics max dose 50 mcg*)
Ketamine (Ketalar): 0.5-1 mg/kg IV; 1-2 mg/kg IM (*pediatric max dose 50 mg IV or 100 mg IM*)
Midazolam (Versed): Anxiety/Sedation: 2-5 mg (*pediatric dose 0.1 mg/kg, max dose 2 mg*)
Sodium Bicarbonate: 100 mEq; infusion at 100-150 cc/hour

Notes:

1. Patients with multiple trauma AND burns are considered trauma patients and should be transported to the closest trauma appropriate trauma center
2. If patient has open extremity injury, specific care should be taken to prevent further contamination during transport
3. Patients with crush injuries (anything with significant force or weight, or entrapment greater than fifteen minutes) may show signs/symptoms of pain outside normal bounds, redness, and swelling and decreased pulses
4. Patients with unstable pelvic fractures may show signs/symptoms of obvious pain and deformity; treat with stabilization and compression
5. Consider TXA for traumatic cerebral hemorrhage

Spinal Immobilization/Clearance

Criteria:

1. Patients 14 years of age or older with low risk of occult spinal cord injury who are not grossly impaired by drugs or alcohol and who are capable of providing sound assessment feedback and information.
2. Traditional spinal immobilization is useful in some patients. Without clear evidence of occult and/or spinal cord injury, the general and routine use of KED's and backboards is prohibited as a patient safety concern. The use of a standing backboard for ambulatory patients at the scene is expressly prohibited.
3. The decision to use a backboard is a separate decision from spinal motion restriction (SMR). In fact, SMR should be used in all traumatic injuries where there is a mechanism for spinal injury.

B

1. Perform a complete and thorough patient assessment.
2. Patients with NO dangerous mechanism of injury[1] and no special circumstances[2] should be transported in a position of comfort. NO BACKBOARD should be used for immobilization.
3. With a reliable history and after a physical examination, any blunt trauma patient with bony tenderness along midline spine, numbness or tingling in the extremities, or a dangerous mechanism of injury[1] shall receive SPINAL MOTION RESTRICTION.
4. Patients with penetrating trauma that do not demonstrate clear neurological deficit do not require spinal immobilization.
5. For patients with multi-system trauma or who are severely impaired and unable to provide assessment feedback, use traditional FULL SPINAL IMMOBILIZATION.
6. Patients with dangerous mechanism of injury[1] or plausible spinal cord injury who are unresponsive or unable to provide and assessment feedback should receive FULL SPINAL IMMOBILIZATION.

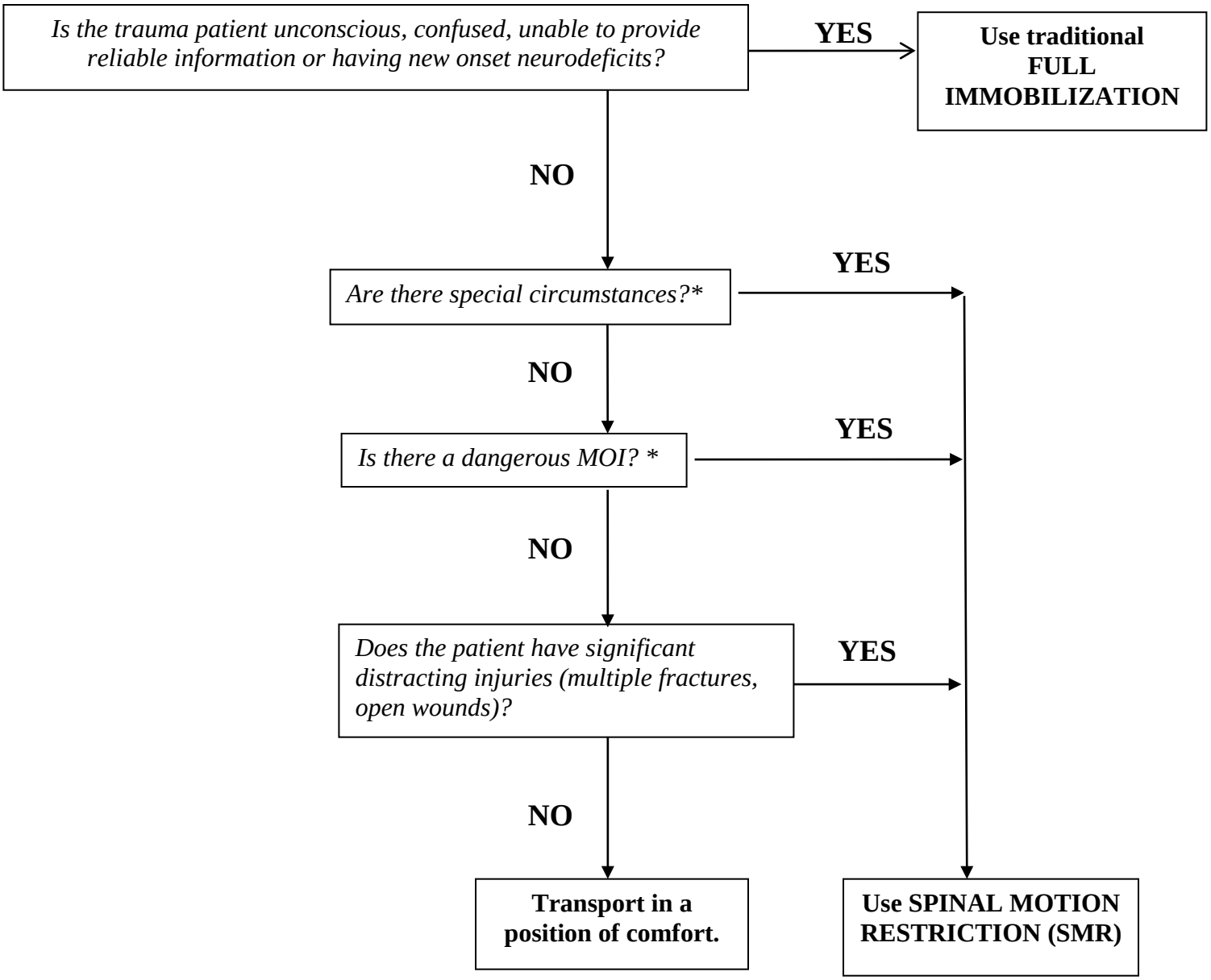
Notes:

1. [1]Dangerous MOI = fall from elevation (greater than 10 feet or 5 stairs), axial loading to the head (dive into shallow water and striking head), high-speed MVC (>60 mph), rollover, or ejection, motorized recreational vehicles; pedestrian/bicycle struck.
2. [2]Special circumstances = known spinal disease, previous c-spine surgery, language barrier, significant intoxication that impairs assessment, significant distracting injuries (multiple fractures, etc), GCS < 14.
3. Spinal Motion Restriction (SMR) = appropriate C-Collar in place, patient supine on padded stretcher. Whenever there is question or doubt, the patient should receive SMR.
4. Immobilization should not interfere with assessment and/or patient care (e.g. airway management, treatment of neck wounds, etc) and should not increase the patient's discomfort.
5. A backboard may be used as a method of transport to remove a patient from the environment, in appropriate circumstances, and may be used to transfer the patient to the transport stretcher.

Created: 05/20/2009 **Revised: 11/19/2014**

Rappahannock EMS Council
Regional Treatment Protocols

Collect HPI, PMH, and perform a physical exam. C-Spine precautions may be needed until completed.



* As defined in the protocol

PRE-HOSPITAL PATIENT CARE PROTOCOL

CLINICAL PROCEDURES

Section IV

Rappahannock EMS Council
250 Executive Center Parkway
Fredericksburg, VA 22401

BASIC LIFE SUPPORT/ADVANCED LIFE SUPPORT
CLINICAL PROCEDURE PROTOCOL

REVISED 06/2007, 12/2009, 06/2011, 10/2017, 05/2019, 04/2022
BOARD APPROVED 06/20/07; 12/16/15; 10/18/17; 06/19/19, 05/18/22

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- **Needle Chest Decompression/Pericardiocentesis**
- **Ventilators & Continuous Positive Airway Pressure**

Scope of Practice Table

Skill or Procedure	EMR	EMT	AEMT	EMT- I	EMT-P	CCP
Airway – Blind Insertion Airway Device (BIAD)	X	AP	S	S	S	S
Airway – BVM, Adult & Pediatric	S	S	S	S	S	S
Airway - CPAP/BiPAP – Adult	X	AP	AP	AP	AP	S
Airway – High Flow Nasal Cannula	X	X	AP	AP	AP	S
Airway – ET, Nasal – Adult	X	X	X	X	S	S
Airway – ET, Oral – Adult	X	X	X	S	S	S
Airway – ET, Oral – Pediatric (< 12 years)	X	X	X	X	AP	S
Airway – ETCO2	X	AP	S	S	S	S
Airway – Mechanical Ventilator – Monitor existing home/chronic ventilator	X	R-OMD	R-OMD	S	S	S
Airway – Mechanical Ventilator – Initiate/manage	X	X	X	AP	AP	S
Airway – Oropharyngeal or Nasopharyngeal	S	S	S	S	S	S
Airway – Position (Chin-Lift; Jaw Thrust)	S	S	S	S	S	S
Airway – Rapid Sequence Intubation (RSI)	X	X	X	X	AP	S
Airway – Needle Cricothyroidotomy	X	X	X	X	R-OMD	S
Airway – Surgical Cricothyroidotomy	X	X	X	X	R-OMD	S
Childbirth	S	S	S	S	S	S
EKG – Interpret a 12 Lead EKG	X	X	X	S	S	S
EKG – Obtain a 12 Lead EKG	X	S	S	S	S	S
EKG - Single Lead Interpretation	X	X	X	S	S	S
Electrical Therapy – Manual Defibrillation	X	X	X	S	S	S
Electrical Therapy – Cardioversion	X	X	X	S	S	S
Electrical Therapy – Transcutaneous Pacing	X	X	X	S	S	S
Extracorporeal Membrane Oxygenation (ECMO)	X	X	X	X	X	X
Foreign Body Removal – Extremities ONLY	X	X	X	X	X	S
Gastric Decompression	X	X	S	S	S	S
Bleeding Control	S	S	S	S	S	S
Intra-aortic Balloon Pump (IABP) transport	X	X	X	X	X	X
IO – Initiate	X	X	S	S	S	S
IV – Access Indwelling Port (Mediport)	X	X	X	AP	AP	S
IV – Access PICC	X	X	X	R-OMD	S	S
IV – Monitor IV rate and patency	X	S	S	S	S	S
IV – Peripheral, Initiate	X	X	S	S	S	S
IV – Set Up IV Fluid and Drip Set	X	S	S	S	S	S
Mechanical CPR Device (apply & use)	S	S	S	S	S	S
Medication Administration – IH (ET)	X	X	X	S	S	S
Medication Administration – IH (MDI)	X	S	S	S	S	S
Medication Administration – IH (Nebulizer)	X	R-OMD	S	S	S	S
Medication Administration – IM	X	R-OMD	S	S	S	S
Medication Administration – IN* Fixed Dose Medication	S	S	S	S	S	S
Medication Administration – IN* Dose Calculation/Measurement	X	X	S	S	S	S

Skill or Procedure	EMR	EMT	AEMT	EMT- I	EMT-P	CCP
Medication Administration – IV – Adult	X	X	S	S	S	S
Medication Administration – IV – Pediatric	X	X	S	S	S	S
Medication Administration – Patient Assisted with Home Prescription	X	S	S	S	S	S
Medication Administration – PO	X	S	S	S	S	S
Medication Administration – PR	X	X	S	S	S	S
Medication Administration – SL	X	S	S	S	S	S
Medication Administration – SQ	X	X	S	S	S	S
Medication Administration – TD	X	X	S	S	S	S
Needle Chest Decompression	X	X	X	S	S	S
Pericardiocentesis	X	X	X	X	AP	S
Resuscitative Endovascular Balloon Occlusion	X	X	X	X	X	X
Suction Endotracheal	X	S	S	S	S	S
Suction Meconium Aspiration with ET	X	X	X	X	R-OMD	S
Therapeutic Hypothermia	X	X	X	X	X	X
Pre-Hospital Ultrasound	X	X	X	X	R-OMD	S

CERTIFICATION DEFINITIONS

EMR = Currently certified as a Virginia EMT-First Responder with no OEMS/EMS PHYSICIAN limitations
EMT = Currently certified as a Virginia EMT-Basic with no OEMS/EMS PHYSICIAN limitations
AEMT = Currently certified as a Virginia Advanced EMT with no OEMS/EMS PHYSICIAN limitations
EMT-I = Currently certified as a Virginia EMT-Intermediate with no OEMS/EMS PHYSICIAN limitations
EMT-P = Currently certified as a Virginia EMT-Paramedic with no OEMS/EMS PHYSICIAN limitations
CCP = Currently certified as a National Registry and Virginia EMT-Paramedic who has completed an advanced practice curriculum or an advanced/critical care certification such as FP-C, CCEMT-P, CICP, etc. Also recommended to include ATLS training and EMS degree. ALSO, must have current EMS PHYSICIAN authorization to practice at this level on file at the REMS Council.
AP = Advanced Practice per OEMS Scope of Practice. Requires a provider to receive additional training designated by current EMS PHYSICIAN. ALSO, must have specific authorization to perform this skill/procedure on file at the REMS Council.

ORDER DEFINITIONS

S = Standing order – may be performed based simply on EMS Certification as defined above
O = On-line medical control order is required PRIOR to attempting the procedure
R-OMD = Skill is standing order per OEMS Scope of Practice, is but restricted to specific providers within the REMS Council – regardless of Virginia EMS certification – that have specific authorization from current EMS PHYSICIAN on file at REMS
X – NOT PERMITTED

Authorized Medication Table

Medication – generic name (trade)	EMR	EMT	AEMT	EMT- I	EMT-P	CCP
Acetaminophen (Tylenol)	X	S	S	S	S	S
Acetylsalicylic Acid (Aspirin)	X	S	S	S	S	S
Adenosine (Adenocard)	X	X	X	S	S	S
Albuterol (Proventil)	X	S	S	S	S	S
Amidate (Etomidate)	X	X	X	X	AP	S
Amiodarone (Cordarone)	X	X	X	S	S	S
Atropine Sulfate (Atropine)	X	X	X	S	S	S
Calcium (Calcium Chloride / Gluconate)	X	X	X	S	S	S
Dextrose 50%, 25%, 10% (D50,D25,D10)	X	X	S	S	S	S
Diltiazem Hydrochloride (Cardizem)	X	X	X	S	S	S
Diphenhydramine (Benadryl)	X	X	S	S	S	S
Dopamine (Dobutrex)	X	X	X	S	S	S
Epinephrine	X	S	S	S	S	S
Fentanyl Citrate (Sublimaze)	X	X	S	S	S	S
Furosemide (Lasix)	X	X	X	S	S	S
Glucagon (GlucaGen)	X	S	S	S	S	S
Ibuprofen (Advil, Motrin)	X	S	S	S	S	S
Ipratropium (Atrovent)	X	S	S	S	S	S
Ketamine (Ketalar) – Pain Management	X	X	X	S	S	S
Ketamine (Ketalar) – Sedation/Restraint	X	X	X	X	AP	S
Ketorolac (Toradol)	X	X	S	S	S	S
Lidocaine (Xylocaine)	X	X	S	S	S	S
Magnesium Sulfate (Magnesium)	X	X	X	S	S	S
Methylprednisolone (Solu-Medrol)	X	X	S	S	S	S
Midazolam Hydrochloride (Versed) - Sedation	X	X	X	S	S	S
Midazolam Hydrochloride (Versed) - Anticonvulsant	X	X	S	S	S	S
Naloxone (Narcan)	S	S	S	S	S	S
Nitroglycerin	X	S	S	S	S	S
Ondansetron (Zofran)	X	S	S	S	S	S
Oxygen	S	S	S	S	S	S
Rocuronium (Zemuron)	X	X	X	X	AP	S
Sodium Bicarbonate	X	X	X	S	S	S
Tranexamic Acid	X	X	S	S	S	S
Vecuronium (Norcuron)	X	X	X	X	AP	S

ORDER DEFINITIONS

S = Standing – may be administered based on EMS Certification as defined in scope of practice

X – Medication NOT PERMITTED to be administered at that certification level

AP = Advanced Practice per OEMS Scope of Practice. Requires a provider to receive additional training designated by current EMS PHYSICIAN. ALSO, must have specific authorization to perform this skill/procedure on file at the REMS Council.

Clinical Procedures – 12-lead Electrocardiogram

Criteria:

1. All patients that are complaining of chest pain (exception for trauma with no suspicion of myocardial contusion)
2. Any patient who has a complaint or finding of syncope without seizure or blood loss; CHF or pulmonary edema; overdose; back pain without trauma; shortness of breath with clear breath sounds; and/or unexplained diaphoresis
3. Any patient found to have a heart rate greater than 150 or less than 50

E M R	Treatment of life-threatening conditions should occur prior to obtaining a 12-lead EKG.
B	If patient's condition warrants, request ALS. DO NOT wait on scene or delay patient transport waiting for ALS Place 10 electrodes on patient's chest in this order and location: RA - right arm, upper arm, or upper chest near the right shoulder LA - left arm, upper arm, or upper chest near the left shoulder RL - right leg or lower abdominal quadrant near the right hip LL - left leg or lower abdominal quadrant near the left hip V1 - 4th intercostal space, immediately to the right of the sternum V2 - 4th intercostal space, immediately to the left of the sternum V4 - 5th intercostal space, midclavicular line left chest (V4 should be placed prior to V3 and V4R is the same landmark, right chest) V6 - 5th intercostal space, midaxillary line of left chest V3 - midway between V2 and V4 V5 - midway between V6 and V4 Once the EKG is obtained, print a copy and read the text information printed on the strip. See CP protocol for additional information Transmit the EKG or provide to ALS when they arrive. ALS providers only need to transmit EKGs with active events

1. The accuracy of information obtained from an EKG is dependent on the proper placement of the electrodes. When applying the arm and leg leads the right and left should at the same location (for example, you can use the right shoulder and left shoulder but you can NOT use the right wrist and left shoulder)

Airway- Management	
Criteria: Patients that are not able to maintain a secure airway.	
B	If respirations are <8, assist with BVM ventilations and supplemental Oxygen. If the patient has no gag and accepts the oral airway, place BIAD.
I	If BLS procedures are not adequate to secure the airway, insert an oral endotracheal tube.
P	If patient has a patent gag or is combative/resisting airway management, see RSI protocol. If the patient has no contraindications, a nasotracheal intubation can be performed instead of oral intubation when complications with equipment prevent standard endotracheal intubation. If UNABLE to ventilate the patient with BVM ventilations and BLS procedures AND UNABLE to intubate or secure with rescue airway perform a needle or surgical cricothyroidotomy. Once a definitive airway has been placed, the patient should be managed with a mechanical ventilator. -tidal volume of 5-8 cc/kg, rate of 8-12 for adults, -ventilator settings should be adjusted to maintain an appropriate SaO2 and ETCO2. Place OG/NG tube placed to relieve any gastric distention.
CCP/ AP	If patient condition doesn't warrant surgical or needle cric but still requires secured airway, consider retrograde intubation.

Notes:

1. If a portion or combination of steps resolves the barrier to airway management, placement of endotracheal tube is not a required end-point. Delayed sequence intubation should be considered.
2. Intubated patients must have confirmation through ETCO2 capnometry and shall be monitored through continuous ETCO2 capnography.
3. Providers are encouraged to research and use shock index as an indicator of post-intubation complications such as hypotension. The prevention of hypotension and other complications are important to ensure the most favorable patient outcome long term.

RAPPAHANNOCK REGIONAL EMS COUNCIL

PATIENT CARE PROTOCOLS

Airway- Rapid Sequence Intubation (RSI- Paralytic)

Criteria:

1. Patients who are not able to maintain a secure natural airway and need AIRWAY PROTECTION due to hemorrhage, aspiration, edema, and risk for airway occlusion; patients who need AIRWAY PROTECTION due to altered LOC, head injury, multiple trauma, burns, overdose, stroke, infections, etc.
2. Patients suffering from respiratory failure due to uncontrolled seizure activity, status asthmaticus, shock, or other conditions.
3. Patients with a projected poor clinical course.

B	If respirations are <8, assist with BVM ventilations and supplemental Oxygen.
CCP/ AP	Apply nasal cannula and administer 10 lpm of Oxygen. For hypotension with signs of hypoperfusion after NS: administer 5-20 mcg **Epinephrine 1:100,000** q 2-5 minutes as a push pressor. Titrate for SBP > 90 mmHg or MAP > 60. For induction: administer 0.3 mg/kg IV/IO **Etomidate**. For paralysis: administer 0.1 mg/kg IV/IO **Vecuronium** or 1 mg/kg **Rocuronium**. After successful intubation, maintain sedation with 0.1 mg/kg **Midazolam**, maximum single dose of 10 mg. If unable to achieve adequate sedation with Etomidate alone, you may add **Fentanyl** 1-2 mcg/kg up to max single dose of 250 mcg or **Ketamine** 2 mg/kg IV. Once a secure airway (ETT) has been placed, the patient should be managed with a mechanical ventilator: -tidal volume of 5-8 cc/kg, rate of 8-12 for adults -ventilator settings should be adjusted to maintain an appropriate SaO2 and ETCO2 Place OG/NG tube to relieve any gastric distention. If patient condition doesn't warrant surgical or needle cric but still requires secured airway, perform retrograde intubation.

Medication Summary:

Epinephrine 1:100,000: 5-20 mcg IV/IO q 3-5 min
Etomidate (Amidate): 0.3 mg/kg IV/IO
Fentanyl (Sublimaze): 1-2 mcg/kg IV/IO up to max single dose of 250 mcg
Ketamine (Ketalar): 2 mg/kg IV/IO
Midazolam (Versed): 0.1 mg/kg IV/IO to a max single dose of 10 mg
Rocuronium (Zemuron): 1 mg/kg IV/IO
Vecuronium (Norcuron): 0.1 mg/kg IV/IO

Notes:

1. To mix Epinephrine push pressor: mix 1 ml 1:10,000 Epinephrine in 9 ml of NS to provide 10 mcg/ml.
2. Intubated patients must have confirmation through ETCO2 capnometry and shall be monitored through continuous waveform ETCO2 capnography.
3. Providers are encouraged to research and use the shock index as an indicator of post-intubation complications such as hypotension. The prevention of hypotension and other complications are important to ensure the most favorable patient outcome long term.

Created: 10/15/2015 **Revised: 04/22/2020**

RAPPAHANNOCK EMS COUNCIL INC.

RAPPAHANNOCK REGIONAL EMS COUNCIL
PATIENT CARE PROTOCOLS

Intravenous and Intraosseous Access

Criteria:

1. Patients that require ALS interventions or would benefit from fluid administration.
2. IO should be considered in patients who are in cardiac arrest or after failed IV access (>90 seconds) during life-threatening condition that is dependent on prompt vascular access.
3. Providers must have the appropriate equipment prior to making attempt at access of specialty lines (i.e.: Huber needle for port access).
4. For Port, PICC, and Central Line Access, patient must meet medical necessity criteria for vascular access while not meeting criteria for intraosseous access.

A	Once IO is established, flush the line with 20-40 mg of 2% **Lidocaine** for adults, (*0.5 mg/kg for pediatric patients*) if the patient is responsive to pain.
I	The following criteria/steps apply to ALL types of devices that are listed for access a) if possible, confirm with patient that device is in good condition and able to be used b) open necessary supplied and maintain aseptic field; don mask and gloves d) ensure the patient's face is turned away from the site/access e) after administration of medications and IV fluids, flush with 20 cc of saline f) document procedure and rationale in patient care report g) If patient is unstable, DO NOT delay access, place an IO. * If the patient has a peripherally inserted central catheter (PICC) or central line consider access in lieu of traditional IV access. Locate the injection port and scrub IV hub with alcohol for 15 seconds. Insert the IV line tubing and secure. Verify patency by flushing with 20 cc saline. ***
P	* If the patient has indwelling medication port consider access of mediport in lieu of traditional IV access. Palpate port location and septum. Ready extension set and non-coring needle. Cleanse implanted port site with alcohol in a circular manner. After drying completely, use chlorhexidine in a scrubbing fashion. Allow to dry completely. Use non-dominant gloved hand to palpate and stabilize implanted port. Insert coring needle via septum of port until tip comes in contact with back of port. Aspirate for blood return and flush with 20 cc NS. Cover site with biopatch or tegaderm. ***

Medication Summary:

Lidocaine 2%: 20-40 mg (*pediatric dose: 0.5 mg/kg)*

Notes:

1. * Requires agency OMD approval for skill ***
2. Absolute contraindications for IO include a fracture in the bone to be used, relative contraindications include a fracture in the same extremity. IO should be deferred in limbs or sites where circulation from that limb is severely compromised. Limit of one IO attempt per limb.
3. Primary sites for IV access are peripheral (hands, arms, antecubital fossa, and saphenous vein) with alternates as scalp veins and external jugular veins.

Created: 05/20/2009 **Revised 4/6/2020**

Mark I Kit

Criteria: Patients that are symptomatic after exposure to organophosphorus pesticides or nerve agents

B	Obtain and administer the **Mark I** auto-injector kit (Atropine 2mg and 2PAM C1 600 MG IM) every five minutes while symptoms persist. Max of three doses
A	If the Mark I kits are unavailable or signs/symptoms of organophosphate persist consider **Atropine** 2 mg IV/IO/IM (Pediatric dose 0.04 mg/kg) every 5 minutes to max dose of 6 mg If patient is actively seizing, administer Mark I kit in ADDITION to anticonvulsants per seizure protocol

Medication Summary:

Atropine: 2 mg IV/IO/IM q 5 min to max dose of 6 mg

Notes:

1. Signs and symptoms of nerve agent exposure (SLUDGEM): salivation, lacrimation, urination, defecation, GI distress, emesis, and miosis
2. Mark I kits are NOT approved for children <14 years of age
3. Duodote auto-injector kits may be substituted for Mark I kits if available

Created: 06/27/2011 **Revised 04/06/2020**

Needle Chest Decompression

Criteria:

1. Patients with blunt or penetrating trauma to the chest or who have diminished or absent breath sounds with TWO of the following: poor ventilation, jugular vein distention, tracheal deviation, or signs/symptoms of shock (hypotension, respiratory distress, etc).
2. Indicated for large pneumothorax and/or hemopneumothorax in patients with respiratory distress or patients with clinical signs of tension pneumothorax.
3. Patients in cardiac arrest with signs of chest/abdominal trauma.
4. Patients with large pneumothorax viewed by US.

I	Assess breathing and chest rise; if signs or symptoms of TENSION PNEUMOTHORAX, perform lateral (4^{th}/5^{th} ICS) needle thoracostomy. Repeat as necessary
CCP/ AP	If patient is in cardiac arrest and has chest trauma, perform pericardiocentesis

Notes:

1. Patients who are not hypotensive or in respiratory distress are NOT generally considered to have an injury which requires NCD.

Ventilators and CPAP

Criteria:

1. CPAP: Patients that are awake but in respiratory distress related to pulmonary edema, asthma, COPD
2. Ventilators: Patients that have been intubated and require positive pressure ventilation

B	Based on the patient's condition (see Respiratory Distress protocol) if CPAP has been deemed necessary, assemble the equipment. Assess for contraindications. If none, apply mask to patient and begin CPAP at 5 cmH2O, titrate pressure to a maximum of 10 cmH2O
I	Non-trauma patients that have been intubated and have a secure airway should be ventilated with a mechanical ventilator (hand bag trauma patients unless peak airway pressures can be closely monitored) -tidal volume of 5-8 cc/kg and a rate of 8-12 for adults -titrate for ETCO2 of 35-45 and SpO2 appropriate for condition

Notes:

1. CPAP contraindications: decreased LOC, hypoventilation, airway trauma, pneumothorax, tracheostomy, recent lung surgery, and extremely unstable vital signs (imminent cardiac arrest)

Created 05/20/2009 **Revised 04/20/2020**

PRE-HOSPITAL PATIENT CARE PROTOCOL

REFERENCE SECTION

Section V

Rappahannock EMS Council
435 Hunter Street
Fredericksburg, VA 22401

BASIC LIFE SUPPORT/ADVANCED LIFE SUPPORT
ADMINISTRATIVE PATIENT CARE PROTOCOL

REVISED 6/07, 12/09, 6/11, 12/15, 10/17, 05/19
BOARD APPROVED 06/20/07; 06/20/11; 12/16/15; 10/18/17, 6/19/19

Rappahannock EMS Council
Protocol Reference

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Trauma Designation

All licensed hospitals are required by the *Code of Virginia* to submit data on their trauma cases to the Virginia Statewide Trauma Registry. Of those 94 licensed hospitals, 14 have been designated as a trauma center.

Level I Trauma Centers	***Level II Trauma Centers***	***Level III Trauma Centers***
Carillion Roanoke Memorial Hospital	Lynchburg General Hospital	Carilion New River Valley Medical Center
Inova Fairfax Hospital	Riverside Regional Medical Center	CJW Medical Center, Chippenham Campus
Sentara Norfolk General Hospital	Winchester Medical Center	Montgomery Regional Hospital
UVA Health System	Mary Washington Hospital	Sentara Virginia Beach General Hospital
VCU Health Systems		Southside Regional Medical Center

Level I

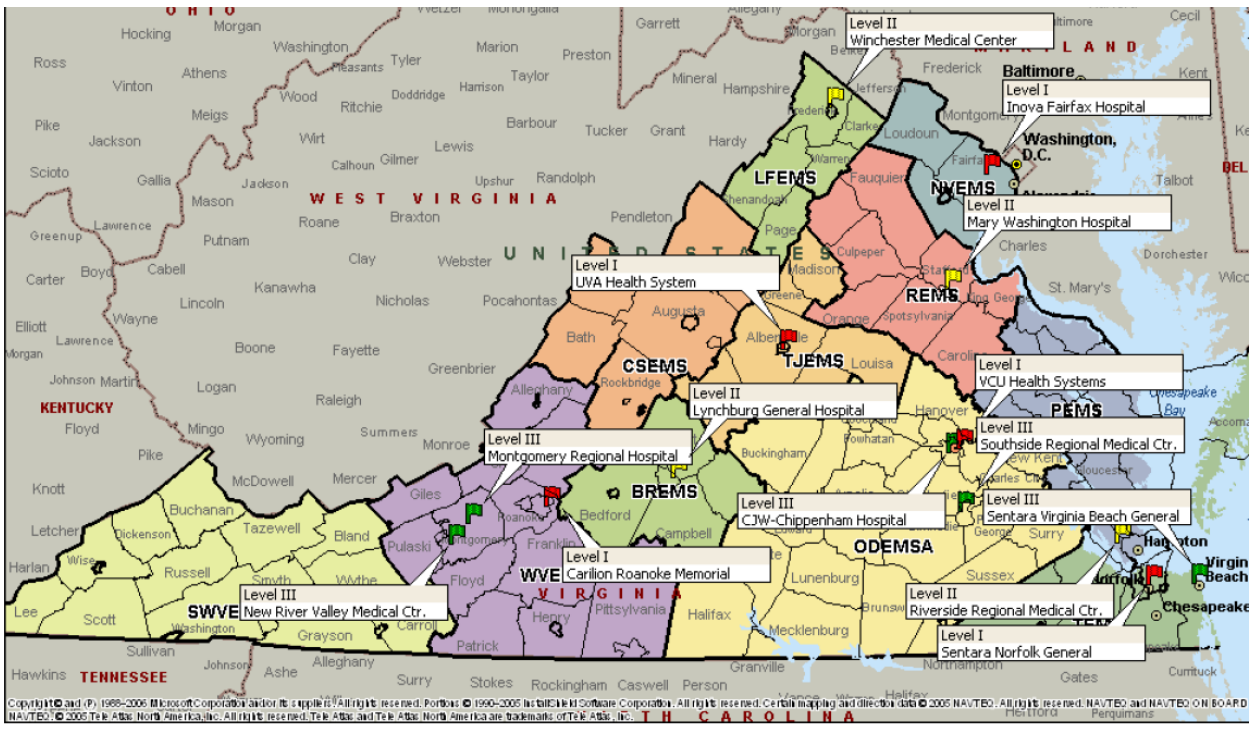
Level I trauma centers have an organized trauma response and are required to provide total care for every aspect of injury, from prevention through rehabilitation. These facilities must have adequate depth of resources and personnel with the capability of providing leadership, education, research, and system planning.

Level II

Level II trauma centers have an organized trauma response and are also expected to provide initial definitive care, regardless of the severity of injury. The specialty requirements may be fulfilled by on call staff, that are promptly available to the patient. Due to limited resources, Level II centers may have to transfer more complex injuries to a Level I center. Level II centers should also take on responsibility for education and system leadership within their region.

Level III

Level III trauma centers, through an organized trauma response, can provide prompt assessment, resuscitation, stabilization, emergency operations and also arrange for the transfer of the patient to a facility that can provide definitive trauma care. Level III centers should also take on responsibility for education and system leadership within their region.



Rappahannock EMS Council
Protocol Reference

DESIGNATED STROKE CENTERS

The following hospitals have been designated as a Primary Stroke Center (or higher) as provided by the Virginia Stroke System Task Force web page:

Geographic Area	Hospital	Type of Stroke Center
Designated Stroke Centers within the REMS Region		
Fredericksburg	**Mary Washington Hospital**	Primary
Spotsylvania	**Spotsylvania Regional Medical Center**	Primary
Warrenton	**Fauquier Hospital**	Primary
Stroke Centers Outside the REMS Region Used by REMS Agencies		
Alexandria	**Inova Alexandria Hospital**	Primary
	Inova Mount Vernon Hospital	Primary
Charlottesville	**Martha Jefferson Hospital**	Primary
	University of Virginia Hospital	Comprehensive
Falls Church	**Inova Fairfax Hospital**	Comprehensive
Mechanicsville	**Bon Secours Regional Medical Center**	Primary
Richmond	**Augusta Medical Center**	Primary
	Bon Secours Richmond Community	Primary
	Bon Secours-St. Mary' Hospital	Comprehensive
	CJW Hospital	Comprehensive
	Henrico Doctor's Hospital	Primary
	Johnston Willis Hospital	Primary
	Parham Doctors' Hospital	Primary
	Retreat Doctors' Hospital	Primary
	VCU Health Systems	Comprehensive
Winchester	**Winchester Medical Center**	Comprehensive
Woodbridge	**Sentara Northern VA Medical Center**	Primary

A current list of all Virginia Stroke Centers may be found on the Virginia Stroke System Task Force web page: http://www.vdh.virginia.gov/stroke/virginia-stroke-systems-task-force/

Rappahannock EMS Council Pre-Alert Procedures: General

Pre-Alerts at First Medical Contact (FMC[1]) for certain medical emergencies are critical to good patient care. It should occur immediately once the EMS provider determines the patient may be suffering from one of the conditions below. The pre-alert does not replace the standard patient report given enroute, but gives the ED physician and ED Staff enough information and time to activate the appropriate response teams, and look up patient's history, previous EKGs, previous care, etc., as appropriate.

REMS Pre-Alert Guidelines at First Medical Contact			
AMI	**Stroke**	**Serious Trauma**	**Sepsis**
12L EKG taken and transmitted to ED[2]	Cincinnati Stroke Test Conducted	ITLS/PHTLS Assessment indicative of Load and Go Patient	SIRS + suspected infection and/or measured Lactate levels are >4 mmol/L
Initial pre-alert is given at FMC, and consists of the following:			
Time of Symptom Onset	Last Known Well Time	Mechanism of injury[3]	Presentation indicative of sepsis[4]
Age of Patient	Age of Patient	Age of Patient	Age of Patient
Signs and Symptoms	Signs and Symptoms	Signs and Symptoms	Signs and Symptoms
12L EKG interpretation (device or provider)	Results of Cincinnati Stroke Test	GCS + vital signs (if available)	Lactate levels & temperature (if available), and BP
Name of Patient[5] and other pertinent information[6]	Name of Patient[5] and other pertinent information[6]	N/A	N/A
The standard, follow-on HEAR report is given en route.			

[1] FMC = First Medical Contact; in this context, first contact by EMS.

[2] If the 12L EKG cannot be transmitted by EMS or received by the hospital, trained ALS provider interpretation is sufficient to activate the AMI/STEMI response per AHA STEMI Guidelines.

[3] The ED may not have enough information during a pre-alert to initiate a trauma activation; that data may come during the normal HEAR report after a rapid trauma or head-to-toe assessment has been accomplished. Some scenarios may initiate an ED trauma alert during the EMS pre-alert without a complete assessment: gunshot to the chest, flail chest, ejection from a vehicle, multi-system trauma, unconscious, etc.

[4] Systemic Inflammatory Response Syndrome (SIRS) is the body's response to an infection and consists of 4 findings …

[5] HIPAA permits the use of a patients name over an unencrypted radio if needed for patient care.

[6] Other pertinent information includes terminal illness, hospice, etc. (2016-07)

Standard Medication Infusions Information

Amiodarone

SVT/VT with a Pulse:

Mix 150 mg in 250 ml of D5W
Administer over 10 minutes
Using a macrodrip (10 gtts/ml): Run at 250 gtts/min

Post arrest infusion:

Mix 250 mg in 250 ml of D5W
Administer 1 mg/min
Using a microdrip (60 gtts/ml): Run at 60 gtts/min
Using a macrodrip set (10 gtts/ml): Run at 10 gtts/min

Pediatric:

Mix desired dose (5 mg/kg) in 100 ml of D5W
Using a microdrip (60 gtts/min): Run at 120 gtts/min
Using a macrodrip set (10 gtts/ml): Run at 20 gtts/min

Dopamine

Mix 400 mg in 250 ml of D5W **OR** Mix 1600 mg in 1000 ml
Concentration is 1600mcg/ml
Using a microdrip (60 qtts/ml) – 1600 mcg / 60 qtts

60 qtts/min (1 drop every second) = 1600 mcg / min
45 qtts/min (1 drop every 1.5 seconds) = 1200 mcg / min
30 qtts/min (1 drop every 2 seconds) = 800 mcg / min
15 qtts/min (1 drop every 4 second) = 400 mcg / min

Epinephrine

Mix 1 mg in 250 ml of D5W
Concentration is 4 mcg/ml

150 qtts/min (5 drops every 2 seconds) = 10 mcg / min
120 qtts/min (2 drops every second) = 8 mcg / min
90 qtts/min (2 drops every 3 seconds) = 6 mcg / min
60 qtts/min (1 drop every second) = 4 mcg / min
30 qtts/min (1 drop every 2 seconds) = 2 mcg / min

Epi push pressor – mix 1ml of Epinephrine 1:10,000 in 9ml Normal Saline = 10 mcg/ml

Magnesium Sulfate

Mix 2 – 4 g (desired dose) in 250 ml of D5W

2000 mg/250ml = 8 mg/ml = 200 mg/min (10 qtts set) wide open
3000 mg/250ml = 12 mg/ml = 300 mg/min (10 qtts set) wide open
4000 mg/250ml = 16 mg/ml = 400 mg/min (10 qtts set) wide open

Tranexamic Acid

Mix 1 g in 250 ml of D5W
Concentration is 4 mg/ml
Using a macrodrip (10 gtts/ml): Run at 250 gtts/min

Recommended fluids to have on hand:

Add-Vantage D5W 100ml bag (1 each)
D5W 250ml bag (2 each)
NS 1000ml bag (4 each)

Mass Casualty Incident – First Unit on Scene Checklist from MCI Plan

Mission/Tasks: First unit on scene gives visual size-up, assumes and announces command, and confirms incident location, then performs the 5 S's:

SAFETY assessment. Assess the scene observing for:

- □ Electrical hazards.
- □ Flammable liquids.
- □ Hazardous Materials
- □ Other life threatening situations.
- □ Be aware of the potential for secondary explosive devices.

SIZE UP the scene: How big and how bad is it? Survey incident scene for:

- □ Type and/or cause of incident.
- □ Approximate number of patients.
- □ Severity level of injuries (either Major or Minor).
- □ Area involved, including problems with scene access.

SEND information:

- □ **Contact dispatch with your size-up information and declare a Multiple or Mass Casualty Incident.**
- □ **Request additional resources.**
- □ **Notify the closest hospital / emergency department of the incident.**

SETUP the scene for management of the casualties:

- □ Establish staging.
- □ Identify access and egress routes.
- □ Identify adequate work areas for Triage, Treatment, and Transportation.

START (Simple **T**riage **A**nd **R**apid **T**reatment) and **JumpSTART** (for pediatric patients).

- □ Begin where you are.
- □ Ask anyone who can walk to move to a designated area.
- □ Use surveyor's tape to mark patients.
- □ Move quickly from patient to patient.
- □ Maintain patient count.
- □ Provide only minimal treatment.
- □ Keep moving!
- □ **Remember…**Establish COMMAND, **S**AFETY, **S**URVEY, **S**END, **S**ET-UP AND **S**TART/JumpSTART

REMS Hospital Diversion Policy for Emergency Patients

A. PURPOSE: To maintain an orderly, systematic and appropriate distribution of emergency patients transported by ambulances during a single or multiple hospital diversion situation within the Rappahannock EMS Council region.

B. SCOPE: This policy pertains to all 6 acute care hospitals and all licensed EMS agencies providing ground ambulance transportation as defined in Virginia Department of Health regulations.

C. POLICY ELEMENTS:

1. **INDICATIONS:** Acute care hospitals (those with emergency departments) occasionally become overwhelmed with patients, exceeding the capacity for the medical staff to adequately treat and monitor those patients. To alleviate this temporary situation, a receiving hospital – after completing an established process, may declare a diversion of acute patients, whereby ambulances are diverted to other area hospitals.

   Ambulance diversion should occur only after the hospital has exhausted internal mechanisms to relieve the situation. When a hospital declares a diversion online medical control will recommend to the EMS ambulance crew to transport the patient to another hospital. A representative of the hospital will contact VHHA (Virginia Hospital and Healthcare Assoc.) and request a period of diversion.

2. **CONTRAINDICATIONS:** Patients with airway obstruction, uncontrollable airway, uncontrollable bleeding, who are in extremis, or with CPR in progress should immediately be taken to the closest appropriate hospital, without regard to the hospital's diversion status.

3. **DIVERSION OVERRULE:** Pre-hospital EMS providers may overrule diversion if a patient is in extremis, or significant weather/traffic delays, mechanical problems, etc. An EMS provider who believes an acute decompensation is likely to occur if the patient is diverted to a more distant hospital ***always*** has the option to take that patient to the closest Emergency Department regardless of the diversion status.

4. **CONSIDERATIONS:** When there are questions about hospital destination in and out of hospital situations, the pre-hospital attendant-in-charge should contact the local hospital as early as possible by radio or phone for destination guidance.

CATEGORIES OF HOSPITAL STATUS	
Open	When a hospital has a full capacity for receiving its usual patient load.
Special Diversion	When a hospital is unable to handle certain types of patient.
Full Diversion	When the hospital has exhausted all resources to appropriately treat additional patients. The Emergency Department is closed to all EMS traffic except those noted in the Contraindications.
Force Open/Out of Service	The hospital Emergency Department would be on diversion, but is open because of multiple hospitals ED closures in the region.
Disaster	Critical or catastrophic circumstances result in operational shutdown. Hospital cannot receive any new patients by EMS or other means. Hospital cannot be placed in Forced Open category.

HOSPITAL SECTOR	
Culpeper Sector	UVA Culpeper Hospital
Fauquier Sector	Fauquier Hospital
Fredericksburg Sector	Mary Washington Hospital (**Level II Trauma Center**)
Spotsylvania Sector	Mary Washington Free Standing ED- Lee's Hill Spotsylvania Regional Medical Center
Stafford Sector	Stafford Hospital

PRE-HOSPITAL PATIENT CARE PROTOCOL

MEDICATION REFERENCE

Section VII

Rappahannock EMS Council
435 Hunter Street
Fredericksburg, VA 22401

BASIC LIFE SUPPORT/ADVANCED LIFE SUPPORT
MEDICATIONS REFERENCE PROTOCOL

REVISED FEBRUARY 2020
REVISED OCTOBER 2017
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DRAFT

1.0 Acetaminophen (Tylenol)

1.1 Mechanism of Action

Effects the Hypothalamus to lower temperature, may also affect the PNS to block pain impulses.

1.2 Indications

1. Headache
2. Muscle Aches
3. Backache
4. Fever

1.3 Contraindications

1. Allergy or hypersensitivity to acetaminophen
2. Severe Active Kidney Disease

1.4 Precautions

1. Patients with renal impairment
2. Excessive alcohol usage
3. Limit to no more than 4g/day for adults

1.5 Side Effects

1. Liver Failure possible with excessive administration

1.6 Suggested Routes of Administration

PO, PR

DRAFT

2.0 Adenosine

2.1 Mechanism of Action

The primary effect of adenosine is to slow conduction through the AV node, thereby terminating reentry tachydysrhythmias such as SVT, and restoring normal sinus rhythm.

2.2 Indications

Adenosine is regarded as the drug of choice for treatment of hemodynamically stable SVT.

2.3 Contraindications

Second- or third-degree block

2.4 Precautions

1. Adenosine may not correct atrial fibrillation, atrial flutter, or ventricular tachycardia
2. Higher doses of adenosine are likely to be needed for patients receiving theophylline or using large quantities of caffeine
3. Lower doses (3 mg or less) of adenosine should be used in patients receiving dipyridamole (Persantin)
4. Extra caution (and lower than usual doses) should be used in patients receiving carbamazepine (Tegretol), which could potentiate AV block of adenosine

2.5 Side Effects

1. Transient facial flushing, coughing, dyspnea
2. Chest discomfort (may simulate angina)
3. Marked slowing of the heart rate (transient asystole may occur)

2.6 Suggested Routes of Administration

Rapid IV/IO bolus (administered over a 1-2 second period).

DRAFT

3.0 Albuterol (Proventil)

3.1 Mechanism of Action

Administration by inhalation allows for preferential affinity for b2 adrenergic receptors, relaxing bronchial smooth muscle, and decreasing airway resistance; suppresses release of leukotrienes and histamine from mast cells in lung tissue.

3.2 Indications

Bronchial asthma or reversible bronchospasm with chronic bronchitis and cases of emphysema. Hyperkalemia associated with crush syndromes.

3.3 Contraindications

1. Hypersensitivity to drug
2. Tachydysrhythmias

3.4 Precautions

Patients with underlying coronary artery disease or preexisting arrhythmias are at much greater risk of myocardial ischemia and exaggerated arrhythmias. Use Albuterol with caution in patients receiving MAO inhibitors (Deprenyl, Seliginine, Eldepryl, Parnate, and Iproniazid) or TCAs (Amitriptyline, Desipramine). May be ineffective in patients taking beta-blockers.

3.5 Side Effects

Palpitations, skeletal muscle tremor, tachycardia, anxiety, nausea, dizziness. Hypokalemia in patients using cardiac glycosides (Digoxin) and diuretics.

3.6 Suggested Routes of Administration

Nebulized

DRAFT

4.0 Amiodarone (Cordarone)

4.1 Mechanism of Action

Amiodarone blocks sodium channels at rapid pacing frequencies and exerts a non-competitive antisympathetic action. One of its main effects, with prolonged administration, is to lengthen the cardiac action potential. In addition, it produces a negative chronotropic effect in nodal tissues. Amiodarone also blocks potassium channels, which contributes to slowing of conduction and prolongation of refractoriness. Its vasodilatory action can decrease cardiac workload and consequently myocardial oxygen consumption.

4.2 Indications

Indicated for initiation of treatment and prophylaxis of frequently recurring ventricular fibrillation and hemodynamically unstable ventricular tachycardia in patient refractory to other therapy. Amiodarone may also be used to treat supraventricular tachycardia.

4.3 Contraindications

Contraindicated in patients with known hypersensitivity to Amiodarone, or in patients with cardiogenic shock, marked sinus bradycardia, and second – or third – degree AV block.

4.4 Precautions

May worsen existing or precipitate new dysrhythmias, including torsades de pointes, and VF. Use with beta-blocking agents could increase risk of hypotension and bradycardia. Amiodarone inhibits atrioventricular conduction and decreases myocardial contractility, increasing the risk of AV block with Verapamil or Diltiazem or of hypotension with any calcium channel blocker. Use with caution in pregnancy and with nursing mothers.

4.5 Side Effects

Adverse reactions include fever, bradycardia, CHF, cardiac arrest, hypotension, ventricular tachycardia, nausea, and abnormal liver function.

4.6 Suggested Routes of Administration

IV/IO

DRAFT

5.0 Aspirin (Acetylsalicylic Acid)

5.1 Mechanism of Action

Aspirin is an anti-inflammatory and a platelet function inhibitor. It has both analgesic and antipyretic properties.

5.2 Indications

1. Chest pain consistent with AMI.

5.3 Contraindications

1. Allergy or hypersensitivity to aspirin
2. Active ulcer disease
3. Asthma

5.4 Precautions

Use with caution in patients with bleeding disorders. Anticoagulants increase risk of bleeding.

5.5 Side Effects

1. Tinnitus
2. Nausea
3. GI distress
4. Dyspepsia
5. GI bleeding

5.6 Suggested Routes of Administration

PO

DRAFT

6.0 Atropine Sulfate (Atropine)

6.1 Mechanism of Action

Atropine produces its antispasmodic, antisecretory, and cardiovascular effects by blockage of acetylcholine at cholinergic receptor sites. Atropine inhibits effects of the parasympathetic nervous system. Positive chronotropic, with little inotropic, effects.

6.2 Indications

1. Symptomatic bradycardia
2. Organophosphate poisoning

6.3 Contraindications

None in the emergency setting.

6.4 Precautions

American Heart Association guidelines don't suggest atropine for treatment of patients with acute MI, and second or third degree (Mobitz type II) AV block. Should be used with caution. Atropine is ineffective for heart transplant patients.

6.5 Side Effects

May precipitate tachydysrhythmias, dysphasia, erythema, flushing, headache, hypotension, mydriasis, vertigo, and xerostomia.

6.6 Suggested Routes of Administration

IV/IO

DRAFT

7.0 Atrovent (Ipratroprium Bromide)

7.1 Mechanism of Action

Ipratropium bromide is an anticholinergic (parasympatholytic) agent, which causes localized bronchodilation.

7.2 Indications

Ipratroprium bromide is indicated for relief of bronchospasm associated with asthma and chronic obstructive pulmonary disease, including chronic bronchitis and emphysema that is unresponsive to treatment with Albuterol alone.

7.3 Contraindications

Hypersensitivity to atropine or its derivatives.

7.4 Precautions

None when co-administered with Albuterol

7.5 Side Effects

Respiratory: Bronchitis, Sinusitis, exacerbation of symptoms.
CNS: Nervousness, dizziness, headache.
Cardiovascular: Palpitations.
GI: Nausea, vomiting, GI distress.
Other: Tremor, dry mouth, blurred vision.

7.6 Suggested Routes of Administration

Nebulized

DRAFT

8.0 Calcium Chloride/Gluconate

8.1 Indications

- Calcium should be administered as an antidote to those patients receiving magnesium sulfate when the side effects, especially bradycardia or other arrhythmias, respiratory depression, hypotension or anaphylactic symptoms, become severe.
- Crush Syndrome / Hyperkalemia
- Calcium Channel Blocker Overdose

8.2 Contraindications

When used to treat magnesium sulfate overdose or Calcium channel blocker overdose, none. Standard contraindications for calcium chloride include VF, digitalis toxicity, and hypercalcemia.

8.3 Precautions

NOT compatible with sodium bicarbonate – do not administer in the same IV line.

8.4 Side Effects

1. Bradycardia
2. Peripheral vasodilatation
3. Local tissue necrosis with IV infiltration
4. Hypotension
5. Metallic taste

8.5 Suggested Routes of Administration

IV/IO

DRAFT

9.0 Dextrose (D10)

9.1 Mechanism of Action

Increases circulating blood sugar levels.

9.2 Indications

Hypoglycemia. Crush Syndrome; Cold Weather Emergencies.

9.3 Contraindications

1. May be detrimental to patients with cerebral ischemia, causing cerebral edema.
2. May precipitate severe neurological symptoms of Wernicke's encephalopathy in alcoholics.

9.4 Precautions

Try to obtain base line glucose level. Ensure patent IV site prior to administration. Flush vein after dose.

9.5 Side Effects

Tissue necrosis, if infiltration occurs.

9.6 Suggested Routes of Administration

IV/IO

DRAFT

10.0 Diltiazem HCL (Cardizem)

10.1 Mechanism of Action

Class IV antiarrhythmic agent. Decreases automaticity in the senatorial (SA) node. Prolongs refractoriness in the atrioventricular (AV) node. Inhibits the influx of extracellular calcium ions to myocardial and vascular smooth muscle cells; decreases cardiac contractility and inhibits constriction of vascular smooth muscle. In patients with PSVT, Diltiazem interrupts reentry in the AV node and restores normal sinus rhythm. Decreases ventricular responses rate in atrial fibrillation and flutter.

10.2 Indications

1. Atrial fibrillation with a ventricular response of 120 beats per minute or greater
2. PSVT refractory to vagal maneuvers and adenosine

10.3 Contraindications

1. Hypotension
2. Bradycardia
3. Patients who present in CHF
4. History of Wolff-Parkinson-White (WPW) Syndrome

10.4 Precautions

Calcium channel blockers such as Diltiazem should be used with caution in patient who receive long-term beta blocker therapy

10.5 Side Effects

1. Hypotension
2. Bradycardia
3. Worsening CHF
4. 2nd or 3rd degree AV block
5. Transient PVCs

10.6 Suggested Routes of Administration

IV/IO

DRAFT

11.0 Diphenhydramine (Benadryl)

11.1 Mechanism of Action

H^1 selective histamine blocker.

11.2 Indications

1. Allergic reactions
2. Urticaria (hives)
3. Anaphylaxis
4. Extrapyramidal symptoms (EPS) such as tremors and gait abnormalities, and dystonic reactions such as dysphagia, are caused by phenothiazines like chlorpromazine, thioridazine, haloperidol, or perphenazine

11.3 Contraindications

1. Angle-closure glaucoma
2. Should not be used in the management of asthma

11.4 Precautions

1. Concurrent ingestion of alcohol or other CNS depressants can produce a synergistic effect that could impair motor skills.

11.5 Side Effects

1. Sedation
2. Disturbed coordination
3. Diplopia (double vision)
4. Hypertension
5. Headache
6. Drowsiness
7. Dizziness
8. Blurred vision
9. Tremors
10. Palpitations
11. Nausea

DRAFT

11.6 Suggested Routes of Administration

IV/IO/IM

DRAFT

12.0 Dopamine (Dobutrex)

12.1 Mechanism of Action

Sympathomimetic which acts directly on alpha- and beta-adrenergic receptors. It has positive inotropic, chronotropic, and dromotropic effects.

12.2 Indications

1. To increase cardiac output in cardiogenic shock
2. Second line therapy in bradycardia
3. Second line therapy in hemorrhagic shock

12.3 Contraindications

1. Ensure patient has been treated with blood before using in hypovolemia
2. Do not use in the presence of tachydysrhythmias or ventricular fibrillation

12.4 Precautions

MAO inhibitors will increase alpha effects.

12.5 Side Effects

1. Ectopic beats, tachycardia, palpitations
2. Nausea, vomiting
3. Angina
4. Headache
5. Localized tissue necrosis if IV leaks

12.6 Suggested Routes of Administration

IV/IO

DRAFT

13.0 Epinephrine

13.1 Mechanism of Action

Potent catecholamine with both alpha and beta properties. Increase myocardial and cerebral blood flow during CPR. Beta effects tend to be more profound and include increased contractile force, heart rate, and automaticity.

13.2 Indications

1. Severe, systematic allergic reaction and anaphylaxis
2. Dyspnea such as asthma (patients under 50 years of age) and COPD exacerbation
3. Adult and Pediatric cardiac arrest - Ventricular fibrillation, Asystole, PEA
4. Severe or Profound Hypotension related to Cardiogenic Shock (given as drip or push pressor)

13.3 Contraindications

1. None with cardiac arrest or anaphylaxis in the pre-hospital setting
2. Patient with coronary artery disease, use with caution
3. Patient is over 50 years of age, use with caution
4. Patient has a heart rate > 120, use with caution

13.4 Precautions

1. May precipitate angina or myocardial infarction in cardiac patients. Wheezing in elderly patients may be pulmonary edema or pulmonary embolism. Protect from light and flush line between sodium bicarbonate and epinephrine

13.5 Side Effects

1. Anxiety
2. Tremors
3. Palpitations
4. Tachycardia
5. Headache

13.6 Suggested Routes of Administration

IV/IM/IO/Nebulized

DRAFT

14.0 Etomidate (Amidate)

14.1 Mechanism of Action

A very rapid-acting, short-duration, non-barbiturate hypnotic with no analgesic properties. Onset of action of up to 1 minute, and duration from 3-5 minutes. Etomidate lowers cerebral blood flow and oxygen consumption and has minimal cardiovascular and respiratory effects.

14.2 Indications

1. Procedural sedation (pre-medication)

14.3 Contraindications

1. Known hypersensitivity
2. Adrenal insufficiency

14.4 Precautions

1. Use with caution in hypotensive patients or those with severe asthma. Not to be given in prolonged situations with multiple high doses; no more than two or three IV/IO bolus only.
2. Use with caution in patients suffering from sepsis.

14.5 Suggested Routes of Administration

IV/IO

DRAFT

15.0 Fentanyl Citrate (Sublimaze)

15.1 Mechanism of Action

When given, Fentanyl is similar to Morphine and Meperidine in its respiratory effects except that respiration of health individuals returns to normal more quickly after Fentanyl. Exhibits little hypnotic activity, and histamine release rarely occurs.

15.2 Indications

For relief of moderate to severe pain.

15.3 Contraindications

Patients with known hypersensitivity to Hydromorphone, intracranial lesions associated with increased ICP, depressed ventilatory function (COPD, cor pulmonale, emphysema, kyphoscoliosis and status asthmaticus).

15.4 Side Effects

CNS: Sedation, drowsiness, mental clouding, lethargy, impairment of mental and physical performance, anxiety, fear, dysphoria, dizziness, psychic dependence, and mood changes.

CV: Circulatory depression, peripheral circulatory collapse and cardiac arrest have occurred following rapid administration. Orthostatic hypotension and fainting have occurred if a patient stands up following an injection.

G.I.: Nausea and vomiting, constipation.

Resp: Respiratory depression.

15.5 Warnings

The concomitant use of other CNS depressants, including other opioids, sedatives or hypnotics, general anesthetics, phenothiazines, tranquilizers, skeletal muscle relaxants, sedating antihistamines, potent inhibitors of P450 (e.g., erythromycin, ketoconazole, and certain protease inhibitors). Alcoholic beverages may produce increased depressant effects. Hypoventilation, hypotension and profound sedation may occur.

15.6 Suggested Routes of Administration

IV/IM/IN

16.0 Furosemide (Lasix)

16.1 Mechanism of Action

Potent diuretic that inhibits sodium and chloride reabsorption in the kidneys. Causes venous dilation.

16.2 Indications

1. Congestive heart failure
2. Pulmonary edema

16.3 Contraindications

Patients who are allergic to sulfonamides or thiazides.

16.4 Precautions

1. Should be limited to life-threatening situations in pregnant patients
2. Use with caution in patients in end-stage renal disease

16.5 Side Effects

1. Potassium depletion with accompanying dysrhythmias
2. Vertigo
3. Visual/auditory disturbances
4. Nausea and vomiting
5. Dehydration and electrolyte depletion can result

16.6 Suggested Routes of Administration

IV/IO

17.0 Glucagon (GlucaGen)

17.1 Mechanism of Action

Releases stored glycogen from the liver, converting it to glucose.

17.2 Indications

Hypoglycemia. Treatment of toxic effects of calcium channel blockers or beta-blockers.

17.3 Contraindications

Known hypersensitivity.

17.4 Precautions

Follow with carbohydrates such as prompt meal, orange juice, or milk as soon as the patient is alert, or an IV is established. Mix only with sterile water. Use with caution in patients with liver disease or failure; patients may have little glycogen stored.

17.5 Side Effects

1. Nausea
2. Hypoglycemia
3. Hyperglycemia
4. Vomiting

17.6 Suggested Routes of Administration

IM

18.0 Ibuprofen (Motrin, Advil)

18.1 Mechanism of Action

Ibuprofen is a NSAID (non-steroidal anti-inflammatory drug). It has both analgesic and antipyretic properties.

18.2 Indications

1. Headaches
2. Pain to musculoskeletal system

18.3 Contraindications

1. Allergy or hypersensitivity to ibuprofen
2. Hypotension
3. History of bleeding disorders such as anemia or clotting problems

18.4 Precautions

Use with caution in patients with bleeding disorders. Anticoagulants increase risk of bleeding.

18.5 Side Effects

1. Nausea
2. GI distress
3. GI bleeding

18.6 Suggested Routes of Administration

PO

19.0 Ketamine Hcl (Ketanest)

19.1 Mechanism of Action

Blocks the NDMA Receptors in the brain producing a dissociative anesthesia.

19.2 Indications

1. An induction agent to precipitate airway management.
2. Chemical Extrication or sedation.
3. Pain management

19.3 Contraindications

1. Hypersensitivity
2. Severe Hypertensive Crisis

19.4 Side Effects

1. May increase the effects of other sedatives, such as benzodiazepines
2. Confusion
3. Hallucinations
4. Hypertension
5. Tachycardia

19.5 Suggested Routes of Administration

IV/IO/IM

20.0 Ketorolac (Toradol)

20.1 Mechanism of Action

Nonsteroidal anti-inflammatory; also exhibits peripherally acting nonnarcotic analgesic activity by inhibiting prostaglandin synthesis.

20.2 Indications

Management of moderate to severe pain. Patient with a history of narcotic medication abuse. Musculoskeletal pain or spasm.

20.3 Contraindications

1. Hypersensitivity to the drug.
2. Patients with allergies to ASA or other NSAIDs.
3. Bleeding disorders
4. Renal failure/Dialysis.
5. Active peptic ulcer disease.
6. Head Trauma or Meets Trauma Triage Criteria
7. History or suspected current Cerebral Hemorrhage
8. Patient is pregnant

20.4 Precautions

Consider reducing dose in patients greater than 65 years of age; patients with liver disease; patient who may have had recent surgery; patients possibly needing surgery for current complaint. May increase bleeding time when administering to patients taking anticoagulants. Effects of lithium and methotrexate may be increased.

20.5 Side Effects

Anaphylaxis from hypersensitivity
Edema
Sedation
Bleeding Disorders
Rash
Nausea
Headache

20.6 Suggested Routes of Administration

IV/IO/IM

21.0 Labetalol

21.1 Mechanism of Action

Class II antiarrhythmic. This a selective Alpha-1 and non-selective Beta-1/Beta-2 antagonist which subsequently will cause a decrease in blood pressure.

21.2 Indications

1. Hypertensive Crisis

21.3 Contraindications

1. Bradycardia
2. Hypotension
3. High degree heart block

21.4 Precautions

1. Patients with decreased renal function

21.5 Side Effects

1. Altered Mental Status
2. Worsening of AV block
3. Fever
4. Laryngospasm
5. Shortness of Breath

21.6 Suggested Routes of Administration

IV

22.0 Lidocaine 2% (Xylocaine)

22.1 Mechanism of Action

The antidysrhythmic effect of Lidocaine is attributed to its ability to decrease automaticity in ventricular myocardium and slows conduction velocity in reentrant pathways of ischemic tissue. The drug also appears to raise fibrillation threshold.

22.2 Indications

1. Ventricular fibrillation
2. Ventricular ectopy
3. Ventricular tachycardia
4. Wide complex tachycardia (unknown origin)
5. Analgesia for flushing IO

22.3 Contraindications

1. Second degree type II and third-degree heart blocks
2. PVCs caused by bradycardia
3. Idioventricular rhythm
4. Sensitivity to Lidocaine or other “caine” medications
5. VT post cocaine usage or in Hyperkalemia

22.4 Precautions

First, treat the cause of the PVCs. Depresses the CNS at doses above 3 mg/kg.

22.5 Side Effects

Hypotension
Conduction disturbances
Bradycardia
Tremors
Confusion
Seizures

22.6 Suggested Routes of Administration

IV/IO

23.0 Magnesium Sulfate

23.1 Mechanism of Action

Given as a smooth muscle relaxant or as an electrolyte replacement for hypomagnesaemia or as an antidote to specific conditions such as Torsades de Pointes or eclampsia.

23.2 Indications

1. For Torsades de Pointes
2. For the first line treatment of severe pre-eclamptic, or eclamptic, females. Severe pre-eclampsia is defined as BP ≥140/90, and facial and peripheral edema with headaches; eclampsia is as previously defined with seizures
3. Tricyclic antidepressant toxicity
4. Status asthmaticus

23.3 Contraindications

1. AV Block or recent myocardial infraction
2. Shock
3. Dialysis patients and those with Renal disease
4. Severe hypertension
5. Hypocalcemia

23.4 Precautions

When using magnesium sulfate, continuous cardiac and vital sign monitoring must be used. If used for pre-eclampsia/eclampsia, patient should be kept quiet and transported in the left lateral recumbent position.

23.5 Side Effects

1. Flushing
2. Bradycardia
3. Decreased deep tendon reflexes
4. Hypothermia
5. Rash
6. Sweating
7. Arrhythmias
8. Drowsiness
9. Hypotension
10. Itching

23.6 Suggested Routes of Administration

IV/IO

24.0 Methylprednisolone (Solu-Medrol)

24.1 Mechanism of Action

Intermediate-acting corticosteroid related to the natural hormones secreted by the adrenal cortex. Targets cells and causes many complex reactions that are responsible for its anti-inflammatory and immunosuppressive effects.

24.2 Indications

1. Anaphylaxis
2. Respiratory distress from asthma or COPD

24.3 Contraindications

1. Known hypersensitivity

24.4 Precautions

A single dose is all that should be given in the prehospital setting. Long-term steroid therapy can cause GI bleeding and prolonged wound care. Pregnancy Category C.

24.5 Side Effects

1. Seizures
2. Vertigo
3. CHF
4. Hypertension
5. Tachycardia
6. Nausea/vomiting
7. Headache
8. Abdominal distension
9. Diarrhea
10. GI hemorrhage
11. Palpitations

24.6 Suggested Routes of Administration

IV/IO/IM

25.0 Midazolam (Versed)

25.1 Mechanism of Action

Class IV Benzodiazepine. It binds to the benzodiazepine receptor and enhances the effects of the brain chemical (neurotransmitter) GABA. Benzodiazepines act at the level of the limbic, thalamic and hypothalamic regions of the CNS to produce short acting CNS depression (including sedation, skeletal muscle relaxation and anti-convulsant activity)

25.2 Indications

1. Sedation
2. Anxiety
3. Seizures
4. Skeletal muscle relaxation

25.3 Contraindications

1. Acute-angle glaucoma

25.4 Precautions

1. Patients with respiratory insufficiency (asthma, COPD, Etc.) are more susceptible to respiratory depression. Effects are enhanced by other CNS depressants and may be more slowly metabolized in the elderly
2. Use caution when administering to patients with history of:
   - Hepatic Dysfunction
   - Renal insufficiency
   - History of drug addiction
   - Parkinson's disease
   - Myasthenia gravis
3. Pregnancy

25.5 Side Effects

1. Respiratory depression
2. May cause Hypotension
3. Nausea/vomiting

25.6 Suggested Routes of Administration

IV/IO/IM/IN

26.0 Metoprolol (Lopressor)

26.1 Mechanism of Action

Class II Antiarrhythmic. It selectively blocks beta-1 receptors in the heart subsequently causing a decrease in heart rate, contractility, conductivity, and the automaticity of the heart. This commonly causes a decrease in blood pressure and heart rate by reducing the workload on the heart, reducing the electrical conduction through the AV node, and reducing the rate of electrical signal generation at the SA node.

26.2 Indications

1. Narrow Complex Tachycardia Arrhythmias

26.3 Contraindications

1. Bradycardia
2. Hypotension
3. High degree heart blocks (2^{nd} and 3^{rd})
4. Allergy to other beta blockers

26.4 Precautions

1. Age (particularly with the elderly)
2. Pregnancy (category C)

26.5 Side Effects

1. Hypotension
2. Shortness of Breath
3. Nausea
4. Worsening of AV block

26.6 Suggested Routes of Administration

IV/IO

27.0 Naloxone (Narcan)

27.1 Mechanism of Action

Competitive opioid antagonist. As such, it is a specific opioid antidote.

27.2 Indications

Reversal of opioid-induced altered mental status and respiratory depression.
Diagnosis of suspected acute opioid intoxication.

27.3 Contraindications

Hypersensitivity to drug.
Adequate respiratory effort

27.4 Precautions

Abrupt withdrawal effects.

27.5 Side Effects

1. Nausea and vomiting
2. Acute Pulmonary Edema
3. Excitation for abrupt reversal of narcotic depression

27.6 Suggested Routes of Administration

IV/IO/IN/Nebulized

28.0 Nitroglycerin (Nitrostat)

28.1 Mechanism of Action

Vascular smooth muscle relaxation leading to venous, coronary, and arterial vasodilatation. These effects lead to a decreased workload on the heart.

28.2 Indications

1. Chest pain associated with angina or MI
2. Pulmonary edema

28.3 Contraindications

1. Hypotension
2. Hypersensitivity to nitrates
3. Patients with increased ICP (head trauma)
4. Viagra, or similar erectile dysfunction medication, taken within past 24-48 hours

28.4 Precautions

1. Hypotension may develop
2. Chronic pain management patients

28.5 Side Effects

1. Headaches due to cerebral vasodilatation
2. Hypotension
3. Postural syncope

28.6 Suggested Routes of Administration

SL/Transdermal

29.0 Ondansetron (Zofran)

29.1 Indications

1. Motion sickness
2. Nausea

29.2 Contraindications

Hypersensitivity to the drug

29.3 Side Effects

1. Drowsiness
2. Dizziness
3. Hypotension
4. Flushing
5. Musculoskeletal pain
6. Cardiovascular disturbances
7. Headache
8. Constipation

29.4 Suggested Routes of Administration

IV/IO/IM/PO

30.0 Pralidoxime (2-PAM®, Protopam Chloride®)

30.1 Mechanism of Action

Reactivates Acetylcholinesterase that has been deactivated by organophosphorus pesticides and related products. Thus, inactivates acetylcholine at both muscarinic and nicotinic sites in the periphery.

30.2 Indications

Organophosphorus toxicity used as adjunct to systemic atropine administration.

30.3 Contraindications

Poisoning with SEVIN (a carbamate insecticide, it increases drug's toxicity). Use with extreme caution in patients with a history of asthma, renal insufficiency and peptic ulcers.

30.4 Side Effects

CNS: Dizziness, headache, drowsiness and excitement.
CV: Tachycardia.
EENT: Blurred vision, diplopia, impaired accommodation, laryngospasm
GI: Nausea.
Other: Muscular weakness or rigidity and hyperventilation.

30.5 Suggested Routes of Administration

IV/IO/IM

31.0 Rocuronium Bromide

31.1 Mechanism of Action

Nondepolarizing neuromuscular blocking agent with rapid to intermediate onset and intermediate duration. Cholinergic receptor antagonist. Inhibits depolarization.

31.2 Indications

To facilitate intubation.

31.3 Contraindications

Hypersensitivity, other neuromuscular blocking agents, neuromuscular disease

31.4 Precautions

May cause severe anaphylactic reaction.

31.5 Side Effects

Tachycardia, nausea/vomiting, hypotension, hypertension

31.6 Suggested Routes of Administration

IV/IO

32.0 Sodium Bicarbonate 8.4%

32.1 Mechanism of Action

Increases plasma bicarbonate, which buffers plasma H^+ ions and raises blood pH.

32.2 Indications

Documented metabolic acidosis
Tricyclic overdose
Prolonged resuscitation with effective ventilation
Upon return of spontaneous circulation after long arrest interval

32.3 Contraindications

Respiratory or metabolic alkalosis

32.4 Precautions

Can cause alkalosis
Most vasopressors, such as dopamine, can be deactivated by the alkaline environment provided by the sodium bicarbonate

32.5 Side Effects

Volume overload
Alkalosis

32.6 Incompatibility

Do not give together in IV with calcium. This combination will produce a precipitate of calcium carbonate. Do not give together in IV with sympathomimetic drugs (e.g. epinephrine), which will be deactivated in an alkaline environment.

32.7 Suggested Routes of Administration

IV/IO

33.0 Tranexamic Acid (TXA)

33.1 Mechanism of Action

Inhibits plasminogen activation and plasma activity. Helps prevent the breakdown of clots.

33.2 Indications

To be used in patients 12 years of age and older who are experiencing hemorrhagic shock.
Cerebral hemorrhage

33.3 Contraindications

1. Injuries greater than three (3) hours old
2. Patients less than twelve (12) years of age
3. Hypersensitivity to the drug

33.4 Precautions

1. Use with caution in patients taking birth control due to an increased risk for blood clots.
2. Use with caution in patients with a history of deep vein thrombosis (DVT), pulmonary embolus, other blood clots, or severe renal failure

33.5 Suggested Routes of Administration

IV/IO

34.0 Enalapril (Vasotec)

34.1 Mechanism of Action

ACE Inhibitor. Prevents the conversion of Angiotensin into Angiotensin II causing a decrease in blood pressure.

34.2 Indications

1. Hypertensive Crisis

34.3 Contraindications

1. Hypotension
2. History of angioedema related to ACE inhibitor usage.
3. Pregnancy

34.4 Precautions

1. Patients with impaired renal function
2. Hyperkalemia

34.5 Side Effects

1. Fatigue
2. Nausea
3. Dizziness

34.6 Suggested Routes of Administration

IV/IO

35.0 Vecuronium Bromide

35.1 Mechanism of Action

Non-depolarizing neuromuscular blockade agent, paralytic, acts by competing for cholinergic receptors at the motor end plate.

35.2 Indications

To facilitate intubation, terminate laryngospasms.

35.3 Contraindications

Known hypersensitivity to the drug

35.4 Precautions

May cause severe anaphylactic reaction.

35.5 Side Effects

Salivation, premature ventricular contractions, tachycardia

35.6 Suggested Routes of Administration

IV/IO